









Journal
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Royal Naval Medical Service.





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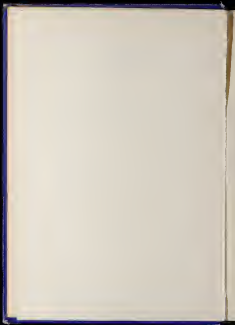
SENIOR CAPTAIN L. M. MORTON, R.N.

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Original Articles.

PERFORATED GASTRITIS AND DUODENAL ULCERS

By LIEUTENANT COLONEL J. H. C. FLEMING, F.R.C.S.

Read at the General Meeting of the Society of Surgeons, 1918, and the British Medical Association, 1919.

When an ulcer in the stomach or duodenum perforates, the severity of which depends on the size of the perforation and the temperament of the subject.

The most misleading feature of an early case of perforation is found in the rigidity of the abdomen, the pulse being slow, full, and strong and the temperature normal or subnormal. But a history of sudden abdominal pain which persists and the presence of board-like rigidity, point to a perforation and no time must be lost in opening the abdomen, since perforations constitute one of the few real emergencies of surgery.

While visiting a football match, a well-built man, aged 34, suddenly collapsed with intense pain in the abdomen and was brought into hospital. His previous health had been good, except for occasional attacks of indigestion. On admission the abdomen was as well as a board, his pulse 70, full and strong, and the temperature 100° F. Although his pain was severe he refused operation, but as the pain was more fully registered in this, suddenly resented it, the operation, only to find a half-hour after perforation. There was a perforated pyloric ulcer, and a gall bladder full of stones. The perforation was closed, and 2 pints removed by paracentesis. When discharged, he was told of his gall stones, and two months later his condition had improved, he had lost weight and was no longer averse to a second gall bladder. Cholecystectomy resulted in a complete recovery.

As a rule a history can be obtained as to the above case of previous attacks of abdominal discomfort, which the patient describes as indigestion.

on the *Lake Magazine* (1) has pointed out, and my experience in the same field as his statement, that the frequency of shew which still exists in all the chronic variety due to my shew for the solution surrounding the shew. Perforation does not always cause the collapse of the parietes, and I have known patients with perforated duodenal shew with mild hospital.

The shew which showing perforation of same cases reported on by myself and one by a colleague during the year 1917, in the Surgical Unit of the Welsh National School of Medicine to the Director of which, Professor A. W. Wilson, I am indebted, brings forth some interesting conclusions which may be summarized as follows:—

(1) The majority of patients are men. The fifteen cases admitted to the Surgical Unit in 1917 were all men, and twenty-one cases upon whom I have operated in the past four years were all men.

(2) The position of the shew. The shews have been grouped systematically as gastric, pyloric or duodenal, pyloric having been used when the shew occupied the position between the duodenum and pyloric antrum, so that it was caused by the run of Stays and could, therefore, neither be considered gastric nor duodenal. Of my twenty-one cases 30 were duodenal, 4 gastric and 1 pyloric; while of the fifteen cases from the unit, 7 were duodenal, 3 gastric, and 4 pyloric.

Most frequently the shew is found anteriorly on the stomach in duodenal but I have had to open the incision immediately to deal with the shew on the back of the stomach (Cases 4, 5, 11, 12, 13, 14, 15, and 16) and in one case (Case 10), I found two shews, one perforated at the pylorus and a second, a large shew on the anterior wall of the body of the stomach.

It will be seen from the table that of the fifteen cases the shew was of the chronic variety in 11, acute in 4 while the shew is not stated in the remaining 2.

PROGNOSIS.

The prognosis depends upon the time after perforation when the operation is performed, being certainly worse when treated later. There were no deaths in the fifteen cases operated upon in the Surgical Unit in the year 1917, and out of my twenty-one cases the only death occurred in a man, aged 40, in whom perforation had taken place seventeen hours before operation. A factor which influences the question of prognosis is the time and position of the perforation, acute small and centrally placed openings tend to be shut off by adhesions or adjacent viscera, and the general peritoneal cavity may be thus protected. The presence of the signs of general peritonitis—redness and distended state of small intestine—under the peritoneum, worse and more extensive for drainage of the cavity.

TREATMENT.

Persons made, oxygen with a little ether if necessary, in chloroform and ether, appears to be the best anesthetic. I have operated upon ten cases

under necessary conditions alone because of severe laceration in the one, and the more general condition of the patient in the other. A long year and six months elapsed before the patient was able to tolerate so that no esophageal anastomosis was attempted with and extending up to the stated stages in duodenal.

The ulcer may be closed with one or more *N* sutures, on a purse string, or several interrupted anastomoses. If there is much surrounding induration the stitches may not cut, when it will usually be found that if they are put on a slight angle to the previous line of anastomosis they will hold. This is, which I have found very useful, was given to the time later up by Mr. John Mason when I was the house surgeon at Middlesex Hospital. After closing the ulcer it is as well to check a piece of intestine—usually either the gastric loop or gastric anastomosis—the suturing is not in a "safety" position.

The abdomen is well supported, particularly the pelvis and the right side (Roman) points and, except in late cases with spreading gastric perforation, closed in layers without drainage.

Gastro-enterostomy.—For duodenal and pyloric, when particularly dense the closing of which tends to interfere with the work of the pylorus. I have had gratifying result in following the performance of gastro-enterostomy at the time of dealing with the perforation. Not only is the continuation of the patient's state, his pain being relieved almost at once, but also with a new route established between the stomach and the small intestine, there is relaxation therein upon the relaxed perforation, and finally, an operation for the cure of the original lesion has been performed while saving the patient from the dangers of perforation. *Gastro-enterostomy* only prolongs the time of operation about twenty minutes, but it is a most shocking operation and a real failure.

Much controversy has arisen around the question of performing gastro-enterostomy. The most part surgeons are divided into two groups: those who advocate closure of the ulcer only, and those who advise the performance of gastro-enterostomy in addition. Even if any of the latter group would advise performing the gastroenterostomy on every occasion, but they believe, and I number myself with them that in suitable cases the recovery of the patient is accelerated and the ultimate result more satisfactory.

In April 1902, Mr. Paterson Brown (J), recovered both the immediate and the late results of a series of forty nine cases of perforated gastric and duodenal ulcers operated upon at the Edinburgh Royal Infirmary, and concluded that, in cases where operation is performed within twelve hours of the perforation and the patient is in good condition, the addition of a gastric enterostomy does not increase the mortality, and that it does make the continuance of the patient easier and more rapid. With this conclusion my experience is in entire agreement.

I have operated upon a patient with duodenal ulcer who had perforated

for a second time no gastro-enterostomy having been performed at it following the first operation; and Mr. Pollock Brown quotes a note of his in which gastro-enterostomy at the time of perforation rendered his patient free from symptoms. This patient had been operated upon elsewhere for a perforated duodenal ulcer, the perforation being treated by simple closure, but he continued to have occasional attacks of epigastric pain which culminated in the second perforation for which Mr. Brown operated.

When an anastomosis is effected, the no-loop, no-peristalsis, post-operative operation is desirable, and a rigid technique should be adopted to secure success. The danger with which gastro-enterostomy is sometimes regarded is due to its adoption in unsuitable cases or to a faulty technique in its performance.

In concluding this paper reference may be made to the somewhat unusual sequence of haematemesis with perforation which I recently met with. There is no reason why there even should anastomosis simultaneously, indeed it is surprising that they do not do so more often, because the same process of erosion which causes destruction of the base of the ulcer might well open vessels in its vicinity.

A patient aged 35, was admitted to hospital suffering from abdominal pain and haematemesis. He first suffered from indigestion a fortnight before. At 7 p.m. on the evening of admission he was seized with a sick attack epigastric pain and shortly afterwards passed blood. On admission he again vomited dark blood and the abdomen was found to be hard like. Three hours after perforation I opened the abdomen and found some adhesions fixed to the surface and a small perforation on the anterior aspect of the first part of the duodenum. There was no surrounding inflammation, but to make sure of sealing the bleeding vessel I sutured a piece of diaphragm along the opening so that the defect has united the rest of the duodenum and performed pyloroplasty no loop no peristalsis gastro-enterostomy. He made an uneventful recovery. It is interesting to note that there was no blood in the peritoneal cavity.

Haematemesis unaccompanied by perforation is regarded as a medical condition since the results of operations are bad, but one cannot help wondering whether these bad results have not been through performing too extensive an operation. I have seen two cases in the post-mortem room which have died without being operated upon from haematemesis and in each the case had made a large vessel in one the coronary artery itself in the other the gastro-duodenal artery. Blood transfusion had been undertaken when the disease was acute, and the usual medical measures had failed to arrest the haemorrhage. These patients continued to bleed and gradually collapsed and died, the physicians regarding treatment as essentially medical. The first cause of vessels being so near haemorrhage, it would seem reasonable to carry out ligature of the eroded vessel, if necessary under microscope in cases of peristalsis and inextinguishable haemorrhage for which any extensive or anastomotic operation would probably be fraught with too much risk. In lessening the severity of the operation,

disposition a further incision. He stated that he had always been able to get about comfortably when, not only had he been unable to relieve it, but the swelling continued (figs) thus it caused him great pain and inconvenience. On examination the patient found to have a large scrotal hernia on the left side, larger than a goose egg. No signs of strangulation, however, was found, and operation was delayed on it for two days, though the prospects of a radical cure seemed very small.

On June 11 under ether after anesthesia, I opened up the left inguinal canal over the upper part of the hernia. The internal ring was found to be in a situation distal the posterior wall of the canal appeared to be almost non-existent. The strangulation was very poor.

The sac which was thick walled and easily caught at its neck, had a broad neck which was ligatured and reduced the swelling contained in the following and the distal part of it was destroyed from the surrounding tissue in which it had freely collapsed. The prostates of the canal, presented a fusiform appearance, but the canal was repaired as well as possible by means and strengthened by bringing down near it all available tissue and adjacent vessels, and covering them, to the external oblique, in the wound thus being closed in the usual way. The wound healed by first intention, and he was discharged on January days in his home, with instructions as regards his diet and further treatment. On July 19 he returned for examination, and expressed himself as very much relieved by the operation, again comfortable and cured. On inspection, however, although there was very slight improvement, there was a palpable bulging at the external wall, which had been anticipated and for which he was recommended to wear a truss.

Case 1—Old Testicular Tumor. On account of Ovarian Tumor.

"C 1," aged 52, married, was admitted to the hospital on June 18 complaining of a swelling in the right testis. He stated that in November, 1894, he sustained a compound fracture of the right tibia as a result of "some work done by him" and being hit by a stone. He was then treated in his local hospital, the leg being put up in plaster of Paris, but when the plaster was removed the leg was found to be swollen, which caused him a badly bruised and considerable disability. On examination the patient walked with a painful limp due to commencing osteo-arthritis of the right knee and ankle-joint, secondary to a very marked over-extension of an old fracture of the middle third of the tibia. There was little or no swelling in the left testis, and the lower fragment of the tibia presented but a very moderate swelling on the inner side of the upper fragment. There was, naturally, considerable swelling of the leg. It was decided to do a conservative osteoplastic operation.

On June 18, under general anesthesia, I exposed the deltoid by a vertical incision commencing medial and the tibia independently by two non-ferrous separated the deltoid muscles and passed through the bone at the site of the fracture obliquely. The resections were completed and the ends were cut and shaped by saw and plane. The ends were then fastened in the same level. The fragments of the tibia were then aligned and secured by a brass wire screw, some plaster applied to the outer surface. The wound was closed and the limb wrapped and in a hot moist dressing of black plaster with foot pain and relief given at immediate splinting. On June 22 the wound had healed by first intention, and the leg was placed the lower leg in a good position. The limb was then put in plaster of Paris for six weeks, so that the bone would be healed as in a good position.

Case 2—Fracture of Cervical Vertebra Caused Cervical Spinal Cord Injury. Recovery.

"C 2" railway was aged 38 married admitted to the railway on June 19 by report of the railway medical officer, the diagnosis of right knee. It

I am not ignorant that William the philosopher has published the notion and his Master the philosopher is satisfied with the notion but he is not satisfied with the notion that I have

THEORY

I am not ignorant that William the philosopher has published the notion and his Master the philosopher is satisfied with the notion but he is not satisfied with the notion that I have

THEORY MADE EASY

I am not ignorant that William the philosopher has published the notion and his Master the philosopher is satisfied with the notion but he is not satisfied with the notion that I have

The average diameter of the pupil is 2 or 3 mm. this being very small if the source of light is 5 m. or more distant, the angle of divergence of the rays is negligible and may be considered parallel hence for finding the refraction of the eye nothing is considered as to its nature.

Beams of light when passing through a lens are always deflected to the thickest part of the lens, except when they pass through the optical centre along the principal axis which does not necessarily correspond to the geometrical centre, neither edge of a lens may be ground to make the optical centre accurate. If a bundle of rays from infinity and therefore parallel pass through a convex lens the rays converge and the point at which they converge is known as the principal focus or ff of the lens. The distance from the ff of the lens to the source of light is the focal length or f of the lens. The two points, infinity and the ff are said to be conjugate. If the source of the light is now placed at the ff , the rays will be made parallel after they have passed through the lens and will be directed to infinity. If the source of light is gradually moved away from the lens, the rays on the opposite side of the lens will begin to converge until the point infinity is reached with the light, when it will be found that the rays are now intersecting at the ff . If the source of light be brought nearer to the lens than the ff the divergent rays will still remain divergent on the opposite side of the lens but less so.

If a bundle of rays from infinity and therefore parallel are passed through a concave lens they are made divergent and will never meet hence a concave lens has no ff , but no conjugate one can again be found by prolonging the divergent rays backwards to the point from which they apparently come. This point is known as the negative ff .

A strong lens has a short focal length and a weak one a longer focal length.

Convex lenses are known as + lenses and concave lenses as - lenses. A lens which F is 2 inches is known as a lens of 1 ft. or 12 inches. In other words a lens of 1 m. will focus parallel rays at a distance of 1 metre while a - lens will make parallel rays more divergent, as if they had come from a point 1 metre on the other side of the lens. A lens of 2 ft. has a f of 2.5 metres and one of 2 ft. a f of 2 metres.

The focal length of a lens is calculated by dividing 2 metres or better

200 cm. by the number of diopters $\div 100$ cm. The eye has a diameter of 24 mm. measured by that of the lens, therefore will be the "focal" strength of the lens.

Since the eye has a focal length of 2 of meters the dioptric strength must be 50 D. and an error of the amount is always produced as the result of one testing patient at 5 meters instead of infinity but as it is so small it seldom has to be allowed for.

The eye has a compound refractive system, consisting of the cornea and the crystalline lens which focuses parallel rays on the retina provided that the mechanism of accommodation is not in action, parallel rays being the only rays the eye can focus without calling the accommodation into play.

The combined optical system of the lens system of the eye has a short distance in front of the posterior surface of the lens, and is known as the *nodal point*. The angle subtended by the object at the nodal point is known as the *visual angle* hence the nearer the object approaches the eye the greater the visual angle under which it is seen.

It has been found that two infinitely small points of light must be separated by a certain distance before the average eye has the power of approaching them as two distinct points. This necessary distance subtends an angle of one degree which is known as the "*minimum visual angle*."

Further investigation has test type on this basis. Each letter being built up on a square divided into twenty five small squares the small squares subtending a visual angle of one degree and the whole letter a visual angle of five degrees. The letters distance is not from the top to the bottom of the test card, and above each letter is a number which indicates in meters the distance from the eye that the letter must be placed to subtend a visual angle of five degrees.

The test card should be well illuminated and the patient should stand 5 meters distant from it. Each eye should be done separately, one being taken that the other eye is well covered.

The normal patient can read easily down to the line marked 20 and is expected to read again which means that from 5 meters from the card and can read the line that the normal eye should be able to do at this distance.

If the patient's vision is not so good, he will fail when he reaches one of the larger lines at bottom for instance the line marked 20. His vision is now said to be 20, which means that at 5 meters he was only able to read what the normal eye could do at 10 meters distance from the test card.

Reading vision is not to be considered, and the visual distance now holds a book over a 50 cm. which being nearer than ordinary reading distance, so the ability would increase and make the line more correct. The reading recommendation is a line of 9 is will be necessary as a line of this strength has a V of 4.5 cm.

The amount of accommodation possessed by the eye diminishes progressively through our life, an account of the hardening of the lens and of the age of about 45 the eye is unable to maintain 15 m. of accommodation. This condition is known as presbyopia, but it must be remembered that some individuals do not become presbyopic until considerably later than 45, particularly if the pupils are small. As a rule, the eye requires 1 m. at 45, but it is necessary only to supplement the accommodation, not to replace it altogether, 1.5 D. at the age of 55 and 2 m. at 65.

The stronger the reading lenses needed, the more are distant objects seen with them. It is obvious that no eye can be focused on the retina that comes from a point further away than the r of the lens, even when accommodation is completely relaxed. It must always be remembered that the least of clear vision of a patient who wears a reading glass is the r of his glass, and it is therefore undesirable to prescribe a reading glass of more than 1 m. in a presbyopic patient.

In myopia or near sightedness the eye is too long for the focal length of its lens system, and parallel rays of light focus in front of the retina, which shows that the eye wants too much refractive power in relation to its length. The myopic eye is therefore focused for some point nearer than infinity. The nearer the point the higher the degree of myopia. This point is known as the *far point*, and means the point from which rays must emanate if they are to focus on the retina or, in other words the conjugate focus of the cornea.

In hypermetropia the eye is too short for the focal length of the lens system, and parallel rays of light focus behind the retina and form on it a diffuse image caused by the rays that have not yet met. The eye will then need a $-$ lens. The hypermetropic has an eye that is adapted for neither near, or distant vision, as it is in focus for no real point. He possesses the power, however, of overcoming the defect by accommodating if he is young enough, which is the opposite to the case of the myope, because the more he accommodates the more he brings the point of focus in front of the retina. It must be clearly understood that the myopic eye has too much refractive power and the hypermetropic too little for their lengths.

Hypermetropia may be due to congenital defects of the cornea.

Antistigmatism is best considered as an extreme curvature of the cornea. The only variety that can be effectively corrected by glasses is that known as regular astigmatism. In this there is one meridian of curvature and one of minimum curvature and these two are usually at right angles to each other. The effect on the focus of the lens system of the eye is the meridian of the greatest curve which will focus rays farther forward than the other direction or. Antistigmatism must be corrected by cylindrical lenses, which have one meridian plane, and the one at right angles to it curved. The refractive power of the most curved meridian is used in measuring the strength of the cylindrical lens.

In simple astigmatism one of the meridians is spherical, and the other

image lies on head of the retina (fovea,) or from eye behind the retina (hypermetropia). It is obvious that the first should be corrected with a lens, and the latter with a lens of the opposite variety. In compound

dioptra, and compound hypermetropic astigmatism, it is best to correct the more distorting meridian with a spherical lens. This will act on all meridians, putting the eye into a case of simple astigmatism that may be treated by an appropriate cylinder added to the sphere already in use.

In correcting patients, we usually place the sphere in the back of the test frame, and the cylinder in front. In making the lenses for spectacle for an eye with compound astigmatism, the optician grinds the front of the lens to produce the spheroid effect of the sphere and then grinds the back astigmatally.

When the meridian of the greatest curve lies on or near the vertical position it is said to be with the rule. When the meridian of greatest curve lies on the horizontal or nearer to the horizontal than the vertical, it is said to be against the rule or oblique. A few degrees of meridian obliqueness is common in patients over 40. Astigmatism, with the rule, tends to become somewhat in degree as age advances.

The astigmatic eye cannot focus with equal distinctness all parts of objects that lie in the direction of its gaze. Rays that proceed from the edges of a vertical line pass through the horizontal meridian of the cornea and eye from the edges of a horizontal line through the vertical meridian.

If in an eye the vertical meridian is emmetropic and the horizontal meridian, it will focus clearly the edges of a horizontal line but only the ends of a vertical one. We thus run by doing a rule that an astigmatic patient can see clearly the edges of lines that coincide with his emmetropic meridian in direction. This holds good whatever the obliquity of the meridian of greatest and least curve may happen to be.

Method of Examination

Make careful inquiry into the history of the patient's difficulties. Examine the anterior segment of the eye with oblique illumination and careful inspection for such evident state of the anterior chamber and iris, and the pupillary reaction. Next do a nearsight, or shadow test with the aid of a plain mirror or an ophthalmoscope, the light being behind the patient's head the examiner taking up his position 1 metre from the patient, who is directed to look into the distance over his head. The nasal and foveal glow will be seen if there is nothing obstructing. The mirror is slowly rotated from side to side, so that as the light from it gradually leaves the eye a dark shadow will be seen to move across the foveal glow gradually obscuring it. The shadow will move with the mirror in hypermetropia, emmetropia and in myopia of less than one degree; as in these conditions the far point is not situated between the observer and his patient, as in the compound eye cannot have moved before they reach him. In myopia of more than one degree the eye will have moved before they reach the observer as the shadow will go against the mirror, the far point being nearer to the eye than 1 metre.

If the incident glow ceases, the image, and suddenly disappears when we open the shutter the shadow is said to be *neutral* and means that at 1 metre we are standing exactly at the point of fixation, in other words a point with $D = 0$ myopia.

In the case of a patient who gives a shadow with the shutter to make it neutral we must put $+ 4$ lines and the desired result is obtained.

In the same type, eye $+ 1$ m. will be the lens required, but in a hypermetropic of 1 m. it will take a lens of $+ 1$ m. to neutralize the shadow. We therefore know that the neutralizing lens is always $+ 1$ m. stronger than the one required to focus the retina for infinity. This is of course because we are standing at 1 metre and choosing the lens, which will focus at 1 metre. In testing patients, however we wish to ascertain the strength of the lens that will focus the eye for infinity, not 1 metre, and this can easily be done by deducting 1 m. from the power of the neutralizing lens.

In the case of a patient who gives a shadow against the mirror, the rays leaving the eye are too convergent to focus on the mirror, say $+ 4$ lines apart to need its assistance. When it has been neutralized to focus on the mirror there will still be 1 m. of myopia, because your eye is at 1 metre distant from the eye and a further $- 1$ m. will be required to focus the retina for infinity. So in myopia add $- 1$ m. to the strength of lens required to neutralize the shadow.

In the eye free from astigmatism the shadow has a curved edge, and its appearance is the same whatever the angle at which we view the light from the mirror across the mirror.

In the case of astigmatism the shadow is more or less straight-edged, and not curved, and may be oblique indicating the obliquity of the astigmatism. We must therefore measure the far point in the one meridian and again in the meridian at right angles to it, and if we subtract the two from one another we shall obtain the amount of astigmatism. It should be noted that the shadow which belongs to the second meridian has the normal and vice versa. When we move our light up and down the mirror we see a shadow, the edges of which are horizontal and vice versa.

In myopia astigmatism the defective meridian is the one with the greatest curvature, while in hypermetropic astigmatism the defective meridian has the least curvature. Hence, in myopia astigmatism, with the axis the axis of the optometer must be horizontal as the normal meridian is more defective, and in hypermetropic astigmatism with the rule vertical as the horizontal meridian is more defective.

There are certain fallacies in connection with the shadow test that we must take into account. Accommodation must be completely relaxed otherwise the eye will itself neutralize hypermetropia or myopia, but fortunately the mirror enables us to see how much accommodation was like a spring, and can be used in one direction only, and then relaxed up to a certain point but no further. The patient's gaze must be straight, otherwise we may wrongly measure the refraction, the perpendicular part of the mirror being usually less spherical.

H. M. S. "GANGES" TRADING ESTABLISHMENT 1898
 BEFORE AND THE NEW QUARTERS SHOTLEY
 (Illustration omitted) 1. DESIGN FOR THE NEW SHOTLEY

Let history of the development of the Days Training Establishment, now known as H. M. S. Ganges, and of the Dock Quarters at Shotley is one of steady growth from early insecure sites to their present comprehensive capacity. They occupy the strong ground in the neighbourhood of Shotley village at the "bait" side of Hamchirkness, on a promontory between the mouths of the rivers Great and Little Ouse. Shotley Point, as it is now known, has not always been so nobly designated, for it was noted on the Admiralty chart under the descriptive name of "Stinky Point," and had earned this unpleasant title from having been the field of more than one naval battle in earlier times when Dutch marauders attempted to raid this part of the coast. Before the Admiralty became possessed of it, the site was War Department property on which there still remained a Fortification 30 in and 7 in M.L. guns. There were also two Martello towers and a laboratory the latter, constructed of wood, was fitted with a lightning conductor and had been used for testing explosives. Shortly before the Ganges trading ship was transferred to Harwich, the Admiralty had obtained War Office sanction for the building of a temporary wooden hospital on the Shotley site for the accommodation of volunteers men that might come amongst the boys. This structure was erected in the autumn of 1898, and was the first building of the present training establishment. It still stands having been converted into a cricket pavilion about the end of 1902. A canteen and public house were erected about this time, while cricket and football grounds and tennis courts were also prepared.

H. M. S. Ganges

The old wooden trading ship that has given its name to the Establishment was a half-built ship of the line, laid down in 1818, and launched in November 1821. She was designed to carry 64 guns, and had a displacement of 240 tons. First fitted as a guard ship apparently for service at Portsmouth, she left for that station in November 1826 and returned to Portsmouth in 1832. Fitted out for foreign service as flagship to Commodore Sir H. Ganges at the former, she left England in July 1836, and returned to England in August 1838. She was next employed as a guard ship at Portsmouth on which service she was employed until February 1841 when she left for service on the Mediterranean, returning to England in March 1844. In 1852 '79 the Ganges was fitted up as a demonstration ship, and appears to have been kept for that service until 1858, when she was re-commenced for service at London during part of

1895 and later, 1911 built the Helderberg station. She returned home and paid off in 1900, on 4 April 1902. We next read of her (Held) as an advanced ship, sent November 1907 when she was refitted as gun-tug at Newport. Then she spent years in the Mediterranean and Pacific, always eventually returning to England in 1901 when she was placed in ordinary at Devonport.

The *Guinea* was first fitted as a training ship for boys at Devonport in 1904. Transferred to Portsmouth she remained there until August 1908 when she was joined by the *Guinea* and then sent to Harwich to be fitted for Harwich, where she arrived in November 1909. About 1902 the Admiralty decided to use the boys on shore, and in 1901 a plan was made on the construction of the present Portsmouth training establishment, at Nothe Point. The original scheme was to provide accommodation for 1,000 boys together with quarters for officers and ship's company, and subsidiary buildings. The capacity was eventually increased to accommodate 1,600 boys. On October 1, 1908 the *Guinea* was paid off, and the following day her officers and boys were transferred to the Nothe Establishment, which was put into commission under Commander W. H. Nicholson. The boys of the other old training ships, *Hammer*, *W. L. Stuart*, and *Caledonia*, were sent to Nothe at about the same time. The headquarters of all these four ships of which the Nothe establishment took the place we set up in permanent positions at the main gate and harbouring the quarter deck. These carved sides of English oak were made kept in they are brightly painted and varnished, attract the attention of visitors to the establishment. The nighty mast, with its yard, swinging over the parade ground, is another striking feature that can be seen from almost every way. Originally the Foremast of the *Caledonia*, it was moved round to Harwich and dropped up slightly, but by the boys.

Nothe Training Establishment was finally completed about the end of 1908. It covers an area of about 94 acres, including some 30 acres laid out in football, cricket, and hockey grounds, and an extensive sports ground with running track and pavilion.

A regular mail steamer service runs between Nothe and Harwich. The water runs in less than a mile distance across the harbour, at the lower end, and is the point of arrival of the *Guinea* and her *Guineas*. Generally, 10 miles by road to the nearest large town on the north side. Portsmouth is within easy reach by water, but is some 12 miles distant by road.

Slightly speaking the *Guinea* establishment is a town in, consists of ward rooms officers quarters, warrant officers, and subalterns quarters, chief petty officers quarters, subalterns mess, ship's company mess, boys messes and dormitories, guard house, mess officers (Kapitan Commander's), school house, signal school, messengers messes, some chapel, drill shed, gun drill barracks, gymnasium, 10 swimming tank, laundry, cook house, bakery, laundry, ship's company, school, boys messes, cricket pavilion, stables and garage. In addition

14. *H.M.S. George: Naval Training Establishment, Port of Spain*

There are various workshops and stores; a boat house, slaps and gym with facilities for practical training in that work; electric generating station and two pump houses.

Washing Bath.—The bath was designed and built in its present low lying position near the foreshore in order to receive water and so that it could be filled and emptied by siphons. Its position (the top of the harbour wall was found to be disposable, and in 1932 a 5 m. main was laid connecting the bath with fresh water springs 2½ miles away at Brewster. The supply has been used ever since.

Dental Surgery.—On September 17, 1949 the dental department removed from the old wooden structure erected during the war (a new and permanent building on the establishment facing the river. The new dental building comprises two surgeries, fully equipped with up to date appliances and fittings including pump driven electric engines, perfect reflector focusing systems, etc. The building also contains reading rooms for officers and ratings; a small office for record and clerical work, a recovery room, sitting room and lavatories.

Lighting.—A large generating station supplies electric lighting throughout the establishment.

Water Supply.—Water for drinking purposes is obtained from the Spanish Corporation Water Works and is conveyed to Wharf through about ¾ mile of 12 in. main. It is hard and palatable.

The water, after entering the establishment is passed through a water-sediment plant which reduces it from 80° to about 6° of hardness. The water then passes into elevated steel gravity tanks. Water for other purposes including hot hydro-massage, laundry, and water flushing, is obtained from the source at Port of Spain already referred to in connection with the swimming bath. This water is not subjected to any softening process.

Drainage.—All sewage passes through a septic tank system with sewage outlet for effluent water, the landings discharging into the harbour.

Disposal of Refuse.—Litter and refuse is removed daily under contract with a local pig farmer. All other refuse is disposed of by the municipality.

Captain's Residence.—In 1905 Harrison Hall some 20 miles from identity was leased by the Admiralty for use as an official residence for Commanding Officer of the Training Establishment and was first occupied as such by Captain L. H. Horton, R.N., on March 26, 1907. Prior to Admiralty occupation this fine old residence was occupied as a farm house. The present structure is a handsome, formal, only a portion of a very ancient stone house and was built about the year 1674, as then occupied by John Philip Fynes. The original old house, which dated back to the thirteenth century, had been occupied at one time by Anne Bolleson, an aunt of Anne Bolleson, the second wife of Henry VIII. History tells of this old lady upon that many of her dearest days were spent at Harrison Hall and husband has it that, on the last night before her execution in the

There, her words are and to have been. I do not know when I can deal and carry it to the grave when I was once so happy. That the patient aspect suggested it here and by the discovery, in 1916, of a heart-shaped one back into the wall of the lady chapel at Horwath church and which now lies there within a vault beneath the organ.

St. Q. Horwath, Horwath

In June, 1906, a dispensary house was erected and this became the nucleus of the present work quarters. Other hospital buildings, comprising a combined administration and kitchen block, one general two storied block containing an operating room, two infectious blocks, a block for infectious staff, now the laboratory and a mortuary with the covering house and boundary wall were completed and taken over in May, 1907. It is interesting to note that the contractor received a bonus of £185 for completing this work earlier than was expected. Quarters for nursing sisters were erected in 1904. Owing to the steady increase in the complete men of boys at Horwath, it was found necessary to enlarge the dispensary house and erect two larger and more up to date dispensing appliances of the Modern, Allen type. The work was carried out in 1907, and, as increased hospital accommodation became imperative, another large two-storied general block and an additional special block were erected in 1909.

During the five years which preceded the outbreak of war a large number of diphtheria and light strains were found at Horwath, and pieces of ancient and modern from there were landed at Stothly from time to time. This caused the need of having a separate block for such cases and eventually another large two storied block was erected in 1914. Its completion was opportune, as the additional accommodation afforded was badly needed during the winter days of the war for the treatment of wounded, including many German prisoners. At the same time a combined store and dormitory block was built at the rear of the existing administrative block to accommodate the additional staff. The nursing sisters' quarters were also enlarged by the addition of two rooms. In 1917 two additional special blocks were erected to meet the need for infectious blocks to accommodate contacts with infected spinal meningitis cases. These two blocks were really intended to be purely temporary structures to be made of wood, but, owing to the great difficulty in obtaining timber during the war period they were constructed in brickwork. A operating chamber was erected in 1918 and the latest addition to the hospital was the new out-patient block and dispensary, completed in 1926. This gave better and much needed accommodation for dealing with the large number of attending hot cases, vaccinations, sick and nerve inspections, and examination of wounds while serious cases in the administration block were referred for office examination and records.

The Sick Quarters at St. Horwath consist of various quarters, all patients

IN H.M.S. *Staples*, Naval Training Establishment for Boys

Block, central block and messes, comprising administrative offices, quarters for male health staff and main kitchens, three general blocks, seven symposium blocks, laboratory, dental for house, spraying chamber, laundry and luggage store.

Practical Accommodation in each Quarter—The private mess accommodates four private officers beds for officers and 142 for ratings. In war time this accommodation is increased by twenty-two beds for ratings.

RECREATION BUILDINGS

In 1906 an important reason for war in connection with the war quarters was created. It takes the form of a "great hall," or small lounge for the use of the women and relatives of men and boys in war quarters. The building was purchased by the sale of House Agents for Sydney Dudley-Welsh, and the furniture and things were provided by private subscription during the Great War.

In an isolated place like Stanley the accommodation then afforded is a great boon to the relatives of patients who may be seriously ill and whose parents or other friends wish to be near them during the critical period of their illness. In the case of boys, relatives no change is made for the month, compared to them. When relatives of other ratings are accommodated, a very low charge is made.

AN OUTLINE OF A BOY'S CAREER DURING HIS TRAINING IN H.M.S. *Camp*

Boys come to Stanley from places as far apart as the North of Scotland, Cornwall and Ireland, and even the colonies, but the majority come to the London seagoing area. Their previous occupations include such careers as that of soldier, mercantile training establishment and Government Hospital boy, messenger, labourer, etc. The occupations former occupations being those of armed boy or labourer. From the time of the war entry arrived at Stanley, perhaps in civilian clothing, perhaps in the uniform of Government Hospital School, with a Naval School, the training ship *Warwick*, *Hamworth*, *Arcturion*, or *Warwick*, until the time he leaves, possibly the first month makes the most concern in the boy himself and to those in charge of him. Take the case of boy just passed in "every" clothes. Will he soon fall into line with the other boys? or will he never get over the possible home and war forced by strange surroundings, accustomed boys company and the idea of discipline now in him? The answer to this is in the alternative. Practically every boy settles down quickly, although the first week or so may not necessarily be one of hardship and stress.

A new entry usually joins the establishment in the evening about 6 p.m. Arriving at Hamworth, he is met by a police officer and gets his first glimpse of the *Camp* Establishment as the day is closed on his first view Hamworth harbor to Stanley, just. On the pier he is met by an instructor here, out to

room, twelve days ago brought a recruit who takes him to the quarters deck. After his name particulars of medical history are recorded, and he has disinfected any such as valentia, he is taken to the bath-house, where he is requested by a navy doctor going for medical patients, to. After this he has a bath and is placed in a suit of best clothing. He is then given supper in No. 30 mess and sleeps there for the night. These preliminaries do not count as a days routine. The following is a condensed summary of the first three days routine:—

First Day—Drill, instructional test at school, hygiene, dietetics, cooking, writing and arithmetic, with addition and subtraction of money, dental examination and throat spraying in sick quarters, hair cut.

Second Day—Swimming test (before leaving Monday, all boys must be able to swim 30 yards and keep afloat a further three minutes on a single raft). Commander's interview. Vaccines (as this is a practical course, boys are vaccinated with live spleen withdrawn from state of entry.) Vaccinations and throat spray. Mark up list with names. Physical measurements taken in gymnasium.

Third Day—Drill. Continue teaching studies of last. Private clothes made-up and sent home. Chaplain's interview. Last clothing and bedding distributed. Throat spray at sick quarters.

Dental treatment is given as soon as possible by appointment. During the first week the new entry is interviewed by the heads of departments who question him as to his weaknesses, what given to him, and also give him good advice. When approximately fifty boys have been through this routine they are formed into a class and sent from the mess establishment to the new entry's mess for one month's preliminary training.

PRELIMINARY TRAINING.

The monthly preliminary training is made up as follows: (a) Cook, maintenance and washing of kit; (b) signal drill; (c) swimming, climbing and instruction; (d) disciplinary and hygiene lectures; (e) school. After the boy has been four weeks in the preliminary class he undergoes a classification test in arithmetic. The paper consists of vulgar and decimal fractions, simple examples in proportion, percentages, &c., and elementary mensuration. On the result of this examination the boys are placed into either P-1, P-2, P-3, or P-4 (P-5 is the abbreviation for preparatory school, and P-6 is the highest class). A boy failing for the advanced class at this point has every chance of qualifying after a three month's schooling. At the end of the month's preliminary training the class is ready for the course in the mess establishment.

MESS ESTABLISHMENT COURSE.

All P-4 classes are introduced in the following subjects: Arithmetic, mensuration, fractions, reading and composition. Examinations are held at the end of each month, when boys can advance from P-4 to P-5, and

usually conducted, and the green metal shells, in no hands of department, including a football between P. M. D. There are three all ready for short future events at all.

Football—Naturally, games, and much to put on a different according to the light of day and weather conditions. Last Friday's result at 10:45 to 1:00 was at 10:45 the day is made up roughly as follows: "Basketballs, one and a half hours; games three and a half hours; sports, three and a half hours. The remainder of the time is principally occupied in general cleaning work.

Pay—Advances of cash against and workers boys are rated boys first class after sixteen weeks on money and money in 10 a week, quarter money, the balance of 10 a day being placed in their credit. General money boys are rated boys 1st class after twenty-one weeks, price to which they receive in a week quarter money, the balance of 10 a day being placed in their credit. Boys may also be 10 a week to their parents before being rated boys 1st class, and in other receiving that rating. As with most boys money forms a hole in their pockets and the weekly allowance disappears in a few minutes on streets, lampposts, etc.

A boy 1st class going on Christmas or Easter leave takes 1 1/2 pocket money and 1/2 on summer leave. A boy 2nd class takes 1/2 pocket money on Christmas or Easter leave, and 1/2 on summer leave. The cost of railway fares when going on leave to their homes is advanced from accumulated pay. A boy's responsible guardian during leave is permitted to call a day for the boy's subsistence. Boys 1st class are credited with 10 a day "gross money."

Smoking is not allowed.

Meals—Meals consist of breakfast dinner tea and supper, in addition to coffee and biscuits at 10:00. The following afternoon meals table shows that the importance of good food attractively chosen is not overlooked, and the noticeable increase in weight and improvement in physique amongst the boys during their training at Blenheim is ample testimony to this.

BOYS' GENERAL MEALS

Three meals are consistently being varied, and the specimens on p. 22 have been chosen as typical from many others.

Games—Every boy receives comprehensively two sets of sports clothing at a special reduced rate. Games given comprise cricket (there are eight patches) athletic sports, in which every boy has to compete, swimming, water polo, target shooting, sports and field gun competition. In winter there are Rugby, Soccer, hockey, boxing, football, swimming, water polo and cross-country running.

All games are played on the inter-class and inter-department system, the winning depts. receiving an appropriate cup at the end of the term.

Naturally every boy desires to be an athlete, and as a check is kept on all boys by means of a games log, to ensure that every boy gets a share of a game daily.

Sd. H M's Camps, Moral Training, Intellectual and Physical

Day	Location	Event	Time	Notes
Monday	Head Mangrove Dugout and Dugout Yes	Head, post, and Head, post, and Head, post, and Head, post, and	Head Head Head Head	Head Head Head Head
Tuesday	Head Mangrove Dugout Yes	Head, post Head, post Head, post Head, post	Head Head Head Head	Head Head Head Head
Wednesday	Head Mangrove Dugout and Dugout Yes	Head, post Head, post Head, post Head, post	Head Head Head Head	Head Head Head Head
Thursday	Head Mangrove Dugout Yes	Head, post Head, post Head, post Head, post	Head Head Head Head	Head Head Head Head
Friday	Head Mangrove Dugout Yes	Head, post Head, post Head, post Head, post	Head Head Head Head	Head Head Head Head
Saturday	Head Mangrove Dugout Yes	Head, post Head, post Head, post Head, post	Head Head Head Head	Head Head Head Head

Every day goes through a course of the life camp, and in the water months the most important takes place, at which boys have the opportunity of qualifying for Empire Merchant Navy Cadets. Last year the Royal Establishment gained no less than twelve of these honours in training.

The summer and winter months are a pleasant break in the week during winter, their place being taken by parties in the summer.

GENERAL RESULTS

It gives a tremendous amount of satisfaction to those whose duty leads them to help in the training, and welfare of these boys to observe the results obtained and to watch these develop and move along according to the encouragement given them. One might ask the question, "Are the boys happy at Sholing?" Undoubtedly, "Yes." Returning from their various spells of leave, totaling more weeks a year, it is almost impossible to find a boy "down in the dumps," or having to come back. Are they sorry to leave Sholing? Perhaps, "Yes, perhaps." "No." The call of the sea probably gives the rule to the "No."

It is as much like this that brother with historical and other details, it is needless to say that I have had no opportunity concern for my facts. I was especially grateful to Lieutenant H. P. Haskins, R.N. of the Grasp, for his irreproachable assistance in tracing the record of a boy during his training at Stanley. I would also like to express my indebtedness to Mr. H. Clark, of the Works Department for having supplied me with so much reliable information about the general layout of the establishment.

DISINFECTION, "TERMINAL" AND "CURRENT" PRINCIPLE, DAY TENDENCIES.

By Thomas Greenham & E. CLARK M.D. DPH. BA.

I have long felt that a great deal of the "terminal" disinfection carried out is useless and wasteful and, of recent years, there has been a general tendency to produce what is days "mixed" means old times form. I therefore venture to tender the following remarks and opinions based on recent literature and papers as by sanitary authorities, with the object of showing that "terminal" disinfection, as practiced at most occasions is a procedure, consistently founded, almost always useless and one whose practical results lend no adequate return to the labour and cost involved.

For many years a considerable amount of time and money has been expended on "terminal" disinfection after cases of the greater infectious diseases, such as scarlet fever, diphtheria, measles and tuberculosis, etc. Sir George Newman recently said (in his paper to the administrative aspects of scarlet fever) - "A vast quantity of popular disinfection which goes on at present is not only entirely ineffective but is wasteful and absurd. To combat one bad smell by creating another is not disinfection. Rescued from the infected case to avoid the mischief of disease, deprived of the "isolated" that is indispensable for their welfare, unassisted conditions exposure to their institutions, and within the before very long or at least are never capable of outgrowing. Experience has shown that the practice of almost all diseases germ requires much of technique specially prepared natural media and carefully regulated temperature etc., and few, except upon bacteria, will resist drying. It is therefore illogical to imagine that these can exist for any length of time or any dark or that on which they happen to fall. The dysentery bacillus of Shiga house does not survive in drier after secretion, for as long as two days, even when preserved in ice. It disappears from water almost completely after two to three days, but has been known to last for six days. It has been found to, die after eight days, and only last for a few days longer under favourable conditions. The extreme bacillus certainly neither lives nor develops except within the human body, and after leaving the body it disappears after a short period and certainly does not multiply normally outside the host. With a the

with external medium in which they can develop, it is possible for the organism to maintain all its essential "habits." Insected persons have shown that even such abnormal growths as are suitable for the continued life as multiplication of the enteric bacillus. The life of the bacillus in water is short and it gradually and not slowly loses viridity and completely disappears in at most ten days. Recent observations show that in faeces, periton, and on the ground, &c., the survival of the bacillus depends especially on the nature of the enclosing medium, and also on the temperature of the surrounding atmosphere and the duration of the present and therefore competing bacteria. As a rule it lives only a few hours in crude sewage at 60° for seventy-two days and in the upper part of most latrine pits. The process of drying kills it very quickly hence that cannot play any important part in its dissemination.

The dissemination of dysentery by water—and to a lesser extent by milk, depends on direct and usually passive contamination. Such persons and healthy "carriers" are the chief sources by which dysentery are distributed, and these transmit in the first place for the contamination of the water or milk.

When we make here slender in the hold on life of the pathogenic germs once it is outside the living body, it becomes clear that the part played by inanimate objects in the spread of contagion is no slight one to be practically negligible. The supposed power of germs—so called "bacteria"—to survive in the air of a room, on the floor and walls and furniture is now known to be uncertain. Even if a few germs do survive for a short time they are most unlikely to do any harm. Furthermore, it has been proved by repeated experiments on bacterially sealed chambers using staphylococci, streptococci and diptheria bacilli for the local food innocuous by human food as soon as very little effect on the germs which had been placed on the floor and walls and on stretched garments within the chamber. With regard to these experiments Dr. John DeWitt Director of the School of Hygiene, in London thus expressed himself on the subject of innocuous: "It is undoubtedly a process of overworking." It may be said by way of retort that, if the methods of disinfection now in vogue are so defective in efficiency as to render them practically useless the remedy is, not to disinfect but to modify them, either by using stronger disinfectants or allowing them a longer time in which to act. The requirements of a disinfectant should such modifications which would make the necessary procedure more laborious than ever, also the fact that "internal" disinfection is unnecessary and of no real value, especially if "current" disinfection be carried out properly conforms any more attention of method.

We have to bear in mind that some infectious diseases are of prolonged duration such as pulmonary tuberculosis, antrax fever and diptheria, and that if disinfection is to be an efficient protective it must be "universal" as well as "internal." The bacillus of tubercle can live only a very short

time outside the normal body—under the natural agents of desiccation, such as sunlight, drying, and atmospheric temperature, it is quickly destroyed or loses its virility. The principal source of infection is individuals and contacts that which most requires protected attention is the affected person himself, especially when suffering from open tuberculosis of the lung. Germ is put from them in the expectorations, saliva and excretions. Affected persons who are able to move about and are capable of spreading it are dangerous, and this fact (and the fact of immunity in many cases) justifies that repeated and comparatively measureless use ordinarily in isolating a healthy person, and a few lying heads on the walls or floor of a room are insignificant. To disinfect a room after the death of a phthisical patient, however, as it may be, is of comparatively minor importance if during a lengthy illness little or no attempt has been made to prevent the spread of infection by "correct" desiccation and exposure. A high standard of disinfection is necessary. The infectious discharges (principal agents in the spread) should be rendered harmless at once. The sputum of the tuberculous patient and the nasal and oral discharges of the diphtheritic should be burnt or placed in strong disinfectants. The secret (protecting secret) of the rotifer patient should be treated with disinfectants before coming to the door. Urinals and bed linen should be soaked or steeped in strong disinfectants.

The value of correct disinfection cannot be overrated, and the opinion is held by an ever increasing number of authorities that if more attention were given to it, there would be little if any need for much of our present "terminal" disinfection. It is generally conceded that the bulk of infection is spread from person to person and not by infected material washed about in the house. The opinion of many experts is day is well summed up by quoting Professor C. Gustave Douglas, who says: "In infectious diseases the great source of infection is in the person, the human host of bacteria, or discharges that have resulted left the patient's body and no measure, objects. Statements of this kind are becoming increasingly frequent and could be quoted ad lib; also others of a similar nature, which show that there are many who share these opinions but have not the courage to apply them practically mainly because to quote any medical officer of health. There would be such an outcry of such measures (i. e., disinfections were abolished, in other words, in the face of public opinion and old established custom.

In the United States of America, in Providence, disinfecting after diphtheria was discontinued on the last of 1905, and eventually after scarlet fever in 1909 and it was found by comparison several years later that there was no appreciable difference in case numbers or recoveries. That example has been followed by many American cities with similar results. In France, it has been recommended that concurrent disinfection should take the place of "terminal" disinfection and in France in 1923, it was officially decided that bedside disinfection should be so regulated that "terminal"

diphtheria is a life threatening organism. (1) Plaque (Lange, M.D. H. C. Brighton has obtained "immune" diphtheria in some guinea pigs, and says that his experiments in this matter are "concluded" because of a desire, so far as it goes, "to do without" by the local authorities, presents no advantage over cleaning. Other conditions are gradually improving, and, according to members of Hygiene Experts held under review. As regards diphtheria, the bacteriological committee of the Medical Research Council in 1922 stated:

"The bacilli do not exist to any serious extent outside the immediate vicinity of a patient and therefore there can be little value in measures designed to destroy dwellings in which diphtheria patients have been ill."

"In formal" disinfection is preferred at all times the most scientific method of doing so is by spraying with a liquid of known strength and germicidal power. That must be verified to be effectively disinfectant. Spraying has the advantage of destroying most effective organisms and also reaching the walls and furniture. As, being used over and over and of this, in addition, the floors prescribed as at least washed over. For bedding and clothing, saturated steam is the best form of disinfectant and can be used anywhere and. If a large disinfectant is run locally, by means of the portable steam disinfectant known as the "tank" made by Mellin's, the work can be done on the spot, and this saves the use of vehicles for conveying and the disturbance of these elsewhere. The clothes of the person of infectious disease are being brought, either the sick person himself, the "carrier" or the intermediate animal host. This sanitation is the basis of the whole of modern prophylactic work. It is upon it that we ought to build all our sanitary measures and standards.

Current" disinfection of current clothing and materials of a patient is the essential thing, with a diligent search for "carriers. The general tendency is to regard "formal" disinfection as too late and useless and if carried out at all it should take the form of scrubbing with hot water (in which disinfectant may be added if desired) and soap followed by exposure to sunlight and fresh air. In fact, "formal" disinfection should consist of cleaning, drying and airing. It must be admitted that in most workshops there are parts, which may be the place where an infected person has spent most of his time that cannot be reached by sunlight at all, but even here a thorough cleaning, drying and airing more thorough than ever, should meet the case.

Perhaps the greatest objection to "formal" disinfection is the confusion which it causes in the public mind and among sanitary authorities. There are but to believe in the scientific efficacy of "formal" disinfection which is supposed to destroy all sources of infection and effectively prevent the spread of disease. This belief leads to the neglect of those little precautions whose performance during the course of the disease is essential for safety. By the time the disease is over the transmission of the disease to others has already taken place and new persons have begun to play the part of "carriers. Some say that "formal" disinfection is

study a matter of psychology and that it is done to maintain public opinion. The agencies would imply that those responsible for the public health administration ought to live, in the most stereotyped perceptions and the most antiquated notions, while all the time recognizing the liability of the workers that they have previously so strongly advocated, and are continuing to promote. Surely one of the chief duties of the public health worker is to endeavor to lead the public, upon the paths of progress and enlightenment and to convince it that, though in the past we have strongly advocated it, we now know that foreignness of mode and indiscriminate working with antisepsis solutions has utterly no value and rests upon a very slender scientific basis. At the same time we should be strongly impressing upon their minds the measures which are essential and indispensable during the course of the illness.

I believe that the day is not far distant when foreignness will only be justified for the transmission of venous, such as rats, lice, bugs, etc., where it is substantiated by evidence and the only means remedy.

I am much indebted to the courtesy extended below in the completion of these remarks.

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A FEW OBSERVATIONS ON LIFE IN HONG KONG AND ON THE WEST RIVER.

By WILLIAM GEORGE H. W. PITTMYR WILLIAMS D.D. D.D.

The object of this article is to give some idea of life in Hong Kong and South China to those who have not been yet there.

Hong Kong itself is an island about 25 miles long and 4 miles wide at the mouth. The narrowest part is a "bottle-neck" of high hills up to an altitude of 1,500 feet. The whole is luxuriantly wooded with a predominance of evergreen trees and shrubs with some deciduous trees and flowering bushes. There are many miles of narrow roads with a perfect surface but of course, bumpy and winding. In addition there are many of the sandy roads still left, especially those leading over the gorges from one side of the island to the other. These roads are too narrow and tortuous for motor traffic. Winding along the hill-side at a height of about 500 feet always keeping level the famous bamboo paths cut through the undergrowth about 3 feet wide. Across to these paths is joined on the water and "sandy" roads. Some of the finest walks in the world are obtained on these paths. The scenery is magnificent with the woods and colossal cliffs running down to the sea—cliffs—cliffs in some places and sandy bays in others—and having a view of the mountains situated at

the sea. *Walled* [walled] all islands facing away to the distance, so to set on the water. The capital of the island, Yutsum, lies on the north side of the island. The town, steep and level ground are covered with houses mostly a capital to 4 stories. Here also are situated the large European shops, hotels and clubs. The dockyard is situated in the center together with various military, lands and barracks. About a mile or two from the dockyard lies the Naval Hospital, perched on a hill of its own overlooking the harbor, but now separated from the sea by houses properly built on reclaimed land.

Towering 1,200 feet above Yutsum is the Peak, which is the principal residential area, access to the top being by cable tramway and motor road. Besides various interesting roads up which carrying others can go, but which are steep for the most part and impossible for cars. Directly opposite Yutsum is the Swallow Peninsula, of the Kwang Tung Province of China, which is held on a lease by the British Government. Cutting the main part of this peninsula is a range of hills which are about 2 miles distant from the spot of the peninsula. The area to the south of these hills is a, between them and Hong Kong island, is rapidly being opened up for building and at present is occupied by the Portuguese colony. However situated the islands for the larger islands and also large 'go down' or 'wasthouse'. The distance between Yutsum and Kowloon is about three quarters of a mile and a few minutes ferry service runs between them.

Climate.—As a rule the climatic conditions are very delicate. The weather is the dry season, and from May to September the rainy season. The most trying period of the year occurs during the months of April, May and June. At this season the nights are damp on the hills both on the island and the mainland, with the temperature perhaps up to 90° F., and the humidity anything up to 95°. Everyplace is wetting and rainfall 7 to 4 inches a day, with intervals of a day or so with no rain. Admittedly, life on the island at these times is not a thing of joy, but the ships are usually absent at this time of the year, either coasting or of the summer here at Wu Han Wu. Usually, during July the weather conditions improve. Periods of sunny weather with a good breeze occur, but it remains hot and damp. July, August and September are the 'typhoon' months. The periods of fair weather are broken up by storms of varying intensity, depending on the nature and duration of the center of the typhoon. A typhoon is usually ushered in by a day of cloudless calm, with heat here everywhere and an oppressive heat somewhat akin to a cloudy day in England. Clouds appear and break up, and then gusts of wind occur followed by heavy rain showers. The wind becomes more fierce and can be quite terrifying in its suddenness and intensity. High breakers are torn off trees and the weather breaks are uprooted. The rain is frequently heavy, as much as 22 inches falling in twenty-four hours. Owing to the mountainous nature of the island, dangerous weather occurs under these conditions, sometimes attended with loss of life to the natives living at the

months of the smaller valleys. The storm gradually blows itself out at the center of the typhoon area, calms and breaks up. There may then be a brief period of sunbath or more.

Towards the end of September the atmosphere conditions begin to improve, and as a rule there is little or no further rain until March. During October, November, December and January the weather conditions are almost ideal. The first two months are still warm, but dry. In fact, tobacco unless specially stored, becomes dark and unmarketable. During December and January there is usually brilliant sunshine with a cool, north easterly breeze. The nights are distinctly cold, and here are necessary winter sweaters. February and March usually yield periods of cloudy weather, still cold and towards the end of the latter month rain storms begin. Roughly speaking, there are three months of the year when, speaking absolutely, life is not pleasant but this is more than amply balanced by the gorgeous weather of the winter.

Accommodations and Household Expenses.—Furnished houses and flats are available, both in Hong Kong itself and Kowloon. Rents, on the average, are high, a small flat of four rooms and office usually costing from 100 to 200 dollars per month, or roughly 15 to 20 at the usual rate of exchange. To run such an establishment it is usual to employ as a small staff a "cook boy" at about 15 a month, and a maid at 10. In a larger house one requires a boy at 12 1/2, a cook at about the same wage and a maid. In such case, especially with a family, a "wash-woman" is advisable. Her wages come to about 15 a month, for which she will do all the washing except washed articles, which have to be sent to a laundry. For infants and small children one can employ a "baby nurse" at about 15 1/2 a month. These nurses are excellent and most capable in every way, but are not able to control older children as a rule. Inasmuch that their own food is the expense is small. Food including very moderate entertaining, generally works out at about 200 dollars to 150 per month. This, of course, does not include wine, etc. The above figures refer to the expenses of a household of three exclusive of the servants, who as already mentioned, provide for themselves. In addition, there are many hotels, private and otherwise, which cater for residents. In these the prices vary considerably but are, roughly from 15 to 100 per month for two persons. These figures refer to the cost of a room only, any drinks and entertaining being extra. On the whole the hotels are very comfortable, and for a married couple only more comfortable and perhaps cheaper than a house in fact. Accommodation of my sort is difficult to obtain and arrangements should be made if possible, before arrival in the colony.

GAMES AND RECREATION.—Nowhere is the knowledge of the winter so general as to be had in such profusion with such ease, as in Hong Kong. During the winter there are seven golf courses, cricket, baggins, horse hockey, baseball and yachting. While during the summer there are golf teams and swimming.

Swamp—May 15 The long, meeting of two days, the days on the spring and about eight a very strange looking one or two days spread over the first, meeting the highest weather. There are all the years. All the players are unknown and extremely good sport is obtained. Nothing will come by the "two months" sports in "hockey" being allowed.

Polo—The polo club is small but good sport is obtained. The cost of games and their playing through not prohibited, is high.

Golf—The Royal Hong Kong Golf Club controls two nine-hole courses on the island, and two eighteen-hole courses (one "championship" course) at Fan Lung in the New Territory on the mainland. The monthly subscription is seven dollars (1 lb.) which entitles all courses. Of the two nine-hole courses, the one at Deepwater Bay is a delightful "pasture" course, situated on the southern side of the island in a beautiful valley with beautifully wooded hills on two sides and the sea on the third. The holes are all short, but it is a very "sporting" course. Short run out to quite near the course. It is much used in the summer, as good bathing is also procurable there. The main bathing beach on the island is situated on the west bay, about three quarters of a mile away. The other small course is at Happy Valley, about a mile from the centre of the town and designed and very near the Naval Hospital. This is a flat course, mostly made the "slopes." Golf here, except in the forenoon, is paid on account of a number of other games, football, hockey, cricket, &c., going on on other parts of the course. The most attraction with respect to having but ten minutes in a clubhouse from the designed.

Golf at Fan Lung is a thing of joy. It is an island course situated amongst hills and plains. Pines and other evergreen trees have been planted on the foot-hills and the fairways, and the greens are as good as those of most English courses. The "championship" course is long and affords very good golf. The other course is so divided that it can be played as an eighteen-hole course or as two nine-hole courses and though considerably shorter than the "championship" one it is more sporting and has a happy of only ten minutes. There are two club houses close together, the men's and the ladies'. There are a few bedrooms in each and, except during the summer, no more delightful spot can be imagined for spending forty-eight hours here. Fan Lung is about 20 miles inland from Kowloon but there is a very good train service with extremely comfortable riding made which takes one hour. Buses are obtainable on the train. There is also a good motor road on the journey taking a little over the hour. The cost of a day at Fan Lung works out at about ten shillings all told, except drinks.

There are two other golf courses, neither of which belongs to the Royal Hong Kong Golf Club, and both are of nine holes. One is situated at Kowloon and is quite new. Very few social officers, belong to this club. The other belongs to a Country Club at Shek O which social officers can join as subscribers at 41 a month. The course is short but very sporting.

Tennis—Many private houses have their own courts, either of grass or

common. On the island there are several clubs. The Croquet Club has the largest number of courts but, except during the annual tournament in the spring, only men are allowed to play. Reserved as it is for the dark park, there is no club club for naval officers, especially if "unattached." There is another club at the Peak (the Peak Club) where there are two grass courts, also at the Mid Level half way up the Peak, is the Ladies Recreation Club, where naval officers are eligible to join, and where there are two grass and several tennis courts.

At the Country Club at Yick O there are also a few grass courts. On the mainland, at Kowloon, about ten minutes from the ferry, is the United Services R.C. situated near the hotel, a beautiful scenery with about a dozen grass courts, this is perhaps the most popular club with naval officers. The membership is very exclusive, and it is chiefly a Service Club.

Golf—The Hong Kong Golf Club is the parent club of the island. There are also many smaller clubs including the Western Golf Club. The season is during the winter months and very good sport is obtainable. Every year there is a triangular contest between Hong Kong, Shanghai and Singapore, held alternately at the three ports. The Hong Kong C.C. ground, being convenient to the duty and shops, provides easily obtainable practice at the club.

Baggy—There is not a great deal played, but during the presence of the fleet in the water some games can be had. The grounds are extremely hard and the games suffer in consequence. An annual triangular contest takes place between the Navy, Army and Customs.

Base—This is much more popular than the alternative code, the Chinese themselves being keen interest in the game.

Cricket—A very popular game, and there are several good grounds. There is a shield which is played for annually by the Navy, Army and the Force.

Tennis—In the winter very good sport is obtained and requires no organization by the Royal Hong Kong Yacht Club which possesses a very good exchange and club house. Several classes of parties can book on Hong Kong.

Swimming—From April to October the bathing season of the water sportsmen. Unfortunately the most popular beach is situated on the other side of the island from Victoria, but it is very accessible by car or bus. Beaches parties are much frequented and lovely legs on the sands around are the result of the season. The water is warm, the temperature often reaching 60° F.

Walking—For those who enjoy this pastime Hong Kong is a wonderful happy hunting ground. Probably no place visited by H.M. ships can afford more variety or more beautiful walks. Another class is that one need not go any distance before commencing a country route. The old "muddy roads" and the forestry paths afford the most picturesque routes.

on the island and on the mainland where the scope is even greater, one can take a horse to any point and walk home across the hills and cultivated valleys. A certain amount of shooting can be obtained, but one is shocked when all the better birds are victims of snakes, of which there are many both on the island and on the mainland.

Shooting—Very little is obtainable in Hong Kong and the New Territory, as the ground is too much shot over, but dogs can be arranged to hunt up the West River, where good sport can be had in the right season.

Clothing, etc.—In the winter ordinary trends of English spring weight and grey or white frock suits are mostly worn by men. Even in the winter coats and trousers are much worn for walking and golf. Some sort of overcoat is needed for motoring and for evenings. Ladies require clothes of a similar weight for day use and washable frocks for evening and golf. Motorcycle frocks are necessary, as helmets, "tailors" and even wet much in vogue. Fur coats are worn for motoring and for the evenings. There are several good English and French shops in Victoria where clothing can be obtained. The women wear coats and trousers are quite good and fairly cheap. Hats and shoes can be obtained of local and English, American, or French make.

Fruit—The local supply is admirable. First and foremost, there is a dairy farm run by Europeans on good land, and in consequence the milk is plentiful, of the highest quality and moderate in price. Hong Kong is the only place on the River where the milk supply is satisfactory. The same company owns the ice and cold storage plant, and from these excellent meat, poultry, bacon, etc., can be obtained. The presence of a dairy farm makes Hong Kong an excellent place for infants and invalid children. The winter has had eight years experience of the place. His own child spent three and a half years there from the age of 18 months and thrived exceedingly during that time. The meat supply is good. Game is imported alive and killed in the Government slaughter under supervision. Much is exported home, and the whole is of excellent quality. Fruit is to be had in abundance all the year round and in great variety. All kinds of vegetables are plentiful and are of good quality. Certain fruits and vegetables, such as water radishes and broccolis are prohibited on account of the intense heat of eating houses causing so many, and the consequent danger of disease of the typhoid group. These two articles can be obtained from America and Canada, whence they are imported, though the price is necessarily high as compared with the local product.

The general health conditions in the colony are good. Various diseases are endemic. These include such germs especially in the winter typhoid fever, dengue and cholera, usually of a mild type. Epidemics are uncommon at least every three years, and are now being vaccinated against, if placed. Malaria occurs but to no large extent. The climate in the winter is ideal and more than makes up for the adverse conditions of the summer.

kind being sold for six or 7 years do extremely well, and one need have no qualms as to the quality of the material which chiefly on account of the splendid milk supply.

Education—*Accommodation* is good, and not too expensive in price. There are no regular system conferences taking place, as both accommodation and suitable attention are adequate.

Schools—There are fairly good schools for smaller children up to 7 years of age.

The West River and Canton

The headquarters of the West River gunboats may be said to be Canton, although they come down to Hong Kong periodically for docking, refitting, and storing. Several other ports on the river are visited from time to time, but they are all much smaller than Canton and have no local accommodation.

About eighty odd years ago when British traders were endeavoring to obtain a foothold in the Chinese Empire in order to carry on their business they suffered many reverses. Having established themselves by peaceful penetration in what were known as *factories* in the native city of Canton, some trouble arose, and the local Chinese authorities ordered them out of the place. As the British Government took no notice of their appeals for help they had to quit, and established themselves in the same by Portuguese policy of Macao some 60 miles away on the delta of the river. The Chinese still remained against them, so formed the Portuguese authorities that if they continued to harbor our merchants they too would be kicked out of their colony. In consequence our traders were asked to remove themselves, and having no alternative but to comply, they established themselves in halls around a small rocky island *Lau Tzu* in the mouth of the Pearl River. Eventually the Home Government took up the question and armed forces and compelled the Chinese to make peace.

Lying in the Pearl River a few yards off the city of Canton, there was a small mud bank dry at low water. It could hardly be dignified with the name of island. Here or less contemporarily they allowed in the above mentioned mud bank as a "warehouse." Thus we took, built a wall or "bank" around it and back along into shalable mud. This former mud bank is now a beautiful mud island, covered with pines and buildings with mud and not garden about half a mile long by a quarter of a mile wide roughly oval in shape and containing the British and French Consulates at Whampoa.

One wonders what the export does a wall any could they use on the mud bank so contemporarily given to the foreign dwell, occupying as it does over half a mile of their last great heritage, covered with beautiful buildings, gardens, and trees.

There is a very comfortable hotel run by a Portuguese a very comfortable club, and some of the finest guest houses which can be found in the West

The island bears of a rowing club's clubhouse, bath, and there was formerly a small, somewhat neglected golf club, situated the other side of the city in Chinese territory, but this has become defunct since the recent troubles in China.

Continuing with Hong Kong, 50 miles away, is by means of river steamer twice daily, about six hours journey and, while the country is washed by tides at about four hours. Canton is situated on the Pearl River which opens into a common delta with the West River, about 40 miles away. There are several interesting waterways between the two rivers, but most of them are too narrow for modern gunboats. The best landing point on the West River is here, then a small place situated at the junction of the North and West Rivers. The river city is situated a mile inland, but on the river bank is the Chinese Maritime Customs Station occupied by a "foreign" Commissioner, Harbour Master, and their staffs. A railway line connects up with Canton, about 20 miles away.

Continuing up the West River one soon comes to the "gorges," where the river winds through a range of mountains. The country here is magnificent, though not equal to that of the Yangtze gorges. On coming from the gorges the country becomes less mountainous, but still the country is truly the real home of a deep red, and the growth of the bamboo and pine trees making a wonderful contrast. At one spot there is an "outcrop" of pure marble, rising about a hundred feet or so with a very jagged ridge. Along the bank occur isolated outcrops of granite, which have become weathered into fantastic shapes, one for example being like a man's head. The river winds through varied country at places not over half a quarter of a mile wide, and then broadening out to over a mile or more. At intervals one finds the typical pagoda in varied states of repair. These are most picturesque landmarks.

Several native towns and villages are passed as one proceeds up river, but the next treaty port is Wuchow, 80 miles up. This city, built as it is on low-lying ground at the confluence of the West and Red Rivers and surrounded by high hills, is frequently inundated during the summer floods. On these occasions the inhabitants of the lower houses make a habit of standing just the lower doors and then the upper of their houses as the river rises. They have been known to frequently camp out on the roof and even to have to remain the porch and take refuge on the hills above. These occurrences are looked upon as being all in the day's work. The country is very picturesque, especially from the hills behind the town, whence fine groups of mountains can be seen in every direction and the West and Red Rivers wind amongst the valleys. Modern gunboats do not go any further up the river as a rule, but during the floods they can reach beyond the next treaty port some hundred miles further up.

There are no hotels in the place, and the "foreign" community consists of a Customs station, representatives of the American Petroleum Company and the Standard Oil Company. There are some hard wooden chairs and

CHRONIC Ophthalmia AND ITS PROBLEMS

(J. HENRI HILL, M.D., MRCO)

CHRONIC TUBES

Tubes resemble at first apply to the chronic condition of the disease, and especially to that large number of cases which walk about unobserved and are labeled neuroticisms, lags or degenerates. The disease is contagious or infectious perhaps slightly in nature but probably more so in a crowded shop. The case is in urgent need of treatment in order to avoid the fearful crippling which results. It is necessary to satisfy the acute cases.

The problems of the disease are its diagnosis, the disposal of the patient, and the question of watching. To come straight to these points. In any case with nervous symptoms, or peculiar symptoms of any sort, examine the eyes. (2) There is loss or weakness of the power of convergence, viz. loss of power of accommodation of the pupil. If these signs are present then the presence of the disease can be looked upon with almost certainty. These signs are stated by some of the authorities quoted below to be present in all cases, and there is probably no error. In his report of April 25, 1906, Sir A. C. Parsons, of the Ministry of Health, said that there was change occurred in 70 per cent. of all the cases treated last past week-end at Bristol, 1904-05 and 1905, and in over 70 per cent. of those at his hotel. Dr. George Rodolph also, in a paper read at the annual meeting of the British Medical Association, said that this pupillary condition and loss of convergence are of some time or other always present. All the authorities quoted before agree that this pupillary loss of vision is intense modulation and loss or weakness of power of convergence are early symptoms, and constant signs. My experience bears this out. There is another sign, found in 50 per cent. of cases at this hospital, namely weakness or loss of power of movement of the eyeballs upwards in a vertical direction. With these eye signs present, even if the other symptoms are vague, the patient should go to hospital. In doubtful cases of nervous origin, to start to examine the eyes for three months would be as bad as to start to examine the heart in doubtful cases of dyspepsia. The examination of the eye is a simple and easy method of getting at the diagnosis.

The next point is that of watching. It is considered that every case showing signs of sympathetic ophthalmia should be watched. The disease, according to statistics in the papers quoted before kills 30 per cent. of those attacked, cripples another 30 per cent. while 30 per cent. can do something to save their lives. It should be borne in mind that these 30 per cent. have only had the disease in the last three years or so, and that there is no reason to suppose that there will not also subsequently show further signs.

At times, when I was in the theatre, he failed to follow and comprehend, appeared almost inattentive and again there was a very marked demonstration of motor failure. An effect of the attack with mild convulsions and symptoms whose eyes have not been tested any other than by his actions and control, and a sharp and all on hand only suffer. Two typical cases will be quoted. The effect was most known from almost labelled symptoms. He was in hospital for a week, had three months only known and was sent abroad once more. Again he was sent home, following from convulsions. He was sent to me and on going through his nervous system I found that he had complete loss of the pupillary reflex to accommodation and loss of power of convergence of the eyes. The pupils reacted sluggishly to light. The patient could not keep his eyes converged on an object at all. A pencilholder held at arms' length from his nose and slowly moved towards that object caused 2 minutes, made his eyes water and he could not converge as fast after the pen had reached within 3 in. of his nose. Then gave out the first. He then gave his history. In about 20 years out of present day since there is no history of an actual definite attack but often there is a history of convulsions or a child with epilepsy. It was about in this case. His history included convulsions, convulsions at night peculiar attacks of blinking and was fixed and during the periods of a minute or so. He complained of inevitable lack of concentration and want of effort. Inconvulsions by night and sleepers by day in demonstration of this condition. He was found on one or two occasions with all his clothes on, fast asleep in the middle of the day in completely closed eyes, tucked up in the bed. One written unaccountable behaviour is also characteristic. Often eyes he had been twitching of the eyelids when the eyelids were voluntarily closed and excessive blinking when the base of the nose was gently tapped. The pyramidal tracts of his head showed presence of lesions. This is a typical picture of the kind of post-convulsive young people who are walking about to day. One would spend an interesting time by watching and notes that one would be likely to see in the future, by first writing down the typical eye signs and then adding a list of symptoms and signs from the list below, picking one or two out of each category namely perhaps, two other eye signs, one respiratory disorder or generalized convulsions, and a few abnormal mental changes, not forgetting characteristic convulsions, convulsions, convulsions and a history of epilepsy.

Another case is that of a boy, F. H. K. who was admitted to the hospital with the following history. He had been believing in a strange manner for a month but not enough to bring him into serious trouble until the last few days, when he concluded himself in such a manner as to lead me to suspect mental instability. He was emotional, and wept on the least provocation. One afternoon he went out and made himself a general nuisance to a shop eventually performing a nuisance not which he did not pay for. The next day he took all his clothes up on a log, passed and tried to put them. He killed a great deal and was shy in his manner.

While being prepared to respond in the work day, he experienced a period of total mental blankness if the action were perfectly familiar. He was stunted in his sensory and language levels. His adolescence had been traversed in years of post-conceptualism. He had developed great difficulty in listening on a subject near his eyes, the power of convergence was almost lost. The diagnosis was made, and later he developed two more signs, namely, vertigoism and olivaceous conceptualism. Physically he was intense as a monkey. His face changed with every emotion, and was always full of expression. He was kept under observation for a week or two, special care being taken to note his hours of sleep at night, for these men are apt to become very restless at night and rampage all over the house. He slept well every night. He was quiet and well behaved while under restraint and gave no trouble. He was finally released and sent home with a post script added to the medical history which pointed out that the boy might behave in an odd manner at home. The sequel is interesting. A short time after he arrived home his parents wrote and said that his behavior was changing and the letter went on to say: "A lot of the funny things he has done since Saturday night perhaps explain my reason for writing to you: (1) He has refused to go to bed and has had no sleep since he arrived home. (2) He orders me to bed at 11 o'clock and on Sunday morning he opened two of duck, hen, and brought them upstairs. (3) He has spent a table of necessity and doing a little of so far all over the place, and made the house upside down with the symptoms of disease all over the place. (4) While I was out at the doctor's this morning, he entered home, took his father's watch apart from the pump, and is at present in hospital after being detained by the police regarding the watch."

Concerning all the very many symptoms and signs which may occur in this disease, it will be understood that they may be many and varied but whatever group appears in any one case the eye symptoms mentioned already will put one on the right track. If these eye signs are absent then the diagnosis would have to be carefully reconsidered. Tubercular meningitis, poliomyelitis, and subarachnoid hemorrhage, especially localized ones, might be thought of.

Types or the Disease

In boys and girls up to 15 or so, the type is characterized by the typical eye symptoms followed by mental changes as illustrated by the second case quoted above. Restlessness and anxiety dominate the scene. In adults the true Perlemonian syndrome is seen. The typical eye signs appear, namely, loss of convergence, stare, slow speech, slow movement when walking. The patient walks from the house, head held stiffly and bowed forward, arms held stiffly by the sides with no swing. When turning he turns 1/2 all at a pace like a block of wood. Usually he is dull. In nearly all cases he is affected by tubercular meningitis and conceptualism. When waking down he remains perfectly still, all natural movement and slight are entirely abolished. One can now realize inside. The lenses are covered and

difficulties are caused by involuntary movements of a part, such as the well-known "jittering movement." It is a popular sign that in these cases is a warning because almost instantaneous. The rigidity is more apparent than real, and the slow movement is not so influenced by rigidity. They can event separately. A case of hysterical hysterical and hysterical convert an apparently rigid paraplegia to a normally moving person for a short time. In some patients affected with Paralysis, if a limb is put into an awkward position (such as raising the arm) it will remain there while the patient's attention is engaged with something else.

There cases of so called "neurotic" with various symptoms differ from in neurotic cases that they are for ever hoping to get better. I have noticed in some post-epileptic cases a peculiar kind of contempt which they have for themselves for having such disabilities. They are well aware of them. Even the mental cases after a violent bout of mental crises the contempt and sometimes rejection. An exaggerated trait of this kind was observed in a lady under my care who was insane. He was always saying that he was no longer any good, that his disabilities made him distinct from all. He had such contempt for his body that he developed such a violent determined potential attitude. He beat himself with his fists as much as he could for his body.

GAUZE OF DISORDERS AND SIGNS

Cerebral Complications—In addition to the typical ones already mentioned, there are signs of bleeding especially in the case of the loss of vision is partly typical, attacks of staring, fixation of eyeballs upwards, no loss of power on upward movement. Tremor of eyelids when voluntarily closed slowly (in Paralysis) still blurring may be infrequent. The pupils may be unequal. There may be paralysis of a single nerve, usually the sixth nerve, sometimes of the third really of some than one. Partial ptosis is fairly common. Mydriasis was equal and large. Bilateral pupils are rare. The pupils are very frequently dilated in these patients to light, but they do not react. *Strabismus* occurs. Deviation of the eyeballs is rare, but a striking one occurred in this hospital. Whenever the eyeballs moved they continued to and the, the movement being like that of the balance wheel of a watch. A practical point is that the typical eye signs in a very slight case may be absent when the patient wakes in the morning but can be easily demonstrated in the evening. *Papilloedema* does not occur.

Respiratory Disorders—Paroxysmal attacks of slow and quick breathing may occur. There may be cessation of all breathing when turning on some deep breaths. One case I saw in the Queen's Hospital Hospital took several deep breaths and then ceased breathing. He became blue and livid in the face, and the assistant appeared alarming, but he always started his respiration again, just as one thought he was dead. Frequent vomiting is very common. *Stomatitis* is another sign.

Mental symptoms.—Here again the possibility of many and varied symptoms is present. The physical and mental signs and symptoms vary, and the disease runs a tortuous course. Varying symptoms and signs of nervous distress part in a temporary and often transient appearance. Day- and night-episodes last from 15 to 30 days continuous and continuous. Characteristic history by day restlessness increases and wandering at night, together with loss, temporary disorientation and disorientation movements occur. The level of movement coming on after 15 years of age should be very carefully investigated before a diagnosis of pure disease is made. Adults usually suffer from Paroxysms with apparently rapid onset, with perhaps more, continuous movements or mental distress. The mental instability of the young is well illustrated by the case already quoted. This type occurs and has made its place in the mind and into the eyes of the moment. He does not think these things, but he has them. Sensory movements may be described as spasms, spasms, shaking, shaking and stamping, and especially slow rhythmic movements of such amplitude that they cause movement in joints. They consist of tremors of the trunk, affected movements of limbs, spasmodic contraction and pressure shaking of the head, full jerking motion of the trunk, and to-and-fro movements of the trunk. This and tremors are also common. *Agitation paroxysms* and *muscular claspings*. There may be generalized tonic tremors, and there may be muscular atrophy, usually of one half of the trunk. *Endocrine disorders.*—These chiefly encephalitic crises, diabetes, glycosuria, hyperthyroidism, Addison's, etc., common. Mental and physical symptoms of such magnitude that it becomes more than a discomfort. The patient wakes up crying and parting by the day getting more and more helpless. Individual crises may be unusually present, exaggerated, or absent. This last condition is usually associated with a pyramidal lesion.

GENERAL.

In that of his 18 appears to have been more severe than in four years ago. For history, a history of an acute onset cannot be so often observed, unless it is a history of influenza, with claspings. The initial attack of the paroxysms is often so mild that no doctor is called in. A severe initial attack consists of fever, usually history and continuous, the onset of tetanospasms, tonic spasms, convulsions, perhaps claspings and hyperreflexia are less frequent than. There is a common and adds to the appearance of history. Paroxysms, 2, following an injury. In a somewhat similar form of nerve poisoning usually appears, the onset of cerebral symptoms such as G. P. 1 as a result of trauma is usually recognized. Injury brings out a latent condition. Probably the same disease would hold in the case of the onset of an encephalitic crisis after injury. *Acute onset of the disease.* The number of cases began to increase in December and is rising by day. *Frequency of cases.* Many cases are mild to moderate. These

cases can be sent to an apople. The Goodenough Society at Brighton used to hold one every week outside Hampton. The M.A.H. has an amphitheatre built upon one of its northern hospitals at Worthing Hill and other institutions, as at the Girls' Training College. Page-Lewis Hall has one also help. Some general cases are diagnosed that their way to the police courts or Hospital. Treatment: Complete rest for about six months to a year. Compression of the interior of the nose by an early intubation, a long course of Phosphorus when desirable. Polyvalent antiseptics various from the intestinal tract and nasopharynx. Tissue belladonna up to 15 grains a day, hypodermic hydrochloride beneath aseptate antiseptically and without undue interference. Indication of rest, however. (Of the above, belladonna had the most marked effect when used over long periods. It never prevents intubation cases. I held the opinion that belladonna is harmful and seems to increase the mental condition. This is borne out by the fact that one of the symptoms of poisoning by belladonna is delirium. The action of hyposcopolamine is only temporary, and is consequently useful in Parkinsonism and in those with fits or excessive movements. A suggested remedy is a prescription of chloral hydrate or a mixture of hyposcopolamine and extract of belladonna, about 5 grains of each t.i.d. Those who have been in contact with an acute case should have a non-pharyngeal application of an ephedrine.

The above remarks are based on cases seen at Royal Naval Hospital, Chelsea, and elsewhere.

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Editorial

Continually appeal to our readers to send our efforts to maintain the *Journal* on the Royal Naval Medical Service by sending to us their contributions, original articles on professional subjects, naval, clinical or all-subjects matters of interest.

This *Journal* was first issued in 1910, to enable naval medical officers to publish accounts of their researches, experience, etc. Apart from purely medical observations, the naval medical officer has unexcelled opportunities, especially when on foreign service, of making valuable and interesting contributions to the pages of the *Journal*. Many subscribers are requested and we would ask our readers to kindly bring the *Journal* to the notice of all naval officers who do not at present support it. We live entirely up to our success and the quality of the *Journal* depends entirely upon the support it receives.

We also take this opportunity of appealing to naval medical officers to support the *Naval Medical Correspondence Fund* by subscribing to it if they have not already done so, and using their influence to induce others to join. The great work that has been and continues to be carried out by this organization is well known.

The interest payment of all the readers the subscription value, capital or surplus of the subscribers eligible for substantial grants in proportion to their need. Payments must be on the Address list of Medical Officers of the Royal Navy at the time of passing but may continue as subscribers after being placed on the Retired or Reserved lists or when resignation of commission.

Clinical Notes.

CASES ON HYDATIC DISEASE.

BY JOSEPH LITTLEMAN, CHURCHMAN, NEW-YORK CITY.

HYDATIC DISEASE.—*particulars and etc.* in the *Aggravated* and in *Chills*, where there are, large numbers of cysts and sharp hydatid stems in the stomach and intestines to be observed by surgeons and physicians in different dissections. During the year, at H. M. S. General, several the South American parts or took to China. I had opportunity of studying a number of years of the Hydatid and other hydatid in Montevideo and in Buenos Aires, and the following notes may be of a benefit. —

Hydatids.—*Hydatids* penetrate the most hydatids in a parasite of the most numerous of these members of cysts of all kinds and of chills. They enter, and leave are observed by seeing the effect of these stems in containing parasites, and the solution is spread in them by drinking water or by using vegetables or any kind of ground from contaminated by these hydatids containing the eggs. These eggs get into, or escape from, the stomach, and spread of the eggs by the host of them are also source of infection.

Prophylaxis.—The number of eggs and cysts are very strongly increased by heat, and may be seen in the stomach. All sharp stems are destroyed, and the bodies of sharp eggs and hydatid stems are particularly increased by eggs. These small hydatids and cysts are small, and water, water from a small cysts is the source of infection. With water, especially after rain, is abundant before rain. The primary hydatids are hydatid in the most numerous variety, or, derived from an infected human source. The most numerous are in the right side of the liver, where it frequently are these hydatids observed, but it may occur in a variety of other organs. Occasionally as strong an explanatory hydatid in several, the same changes have hydatid accompanied by apparently various the organs. This explains the hydatids, more dense and hydatid but we are found more from containing the fluid and cysts from a hydatid egg of some organ, usually the liver. This is termed hydatid parasites, and when containing the hydatid fluid, termed cyst hydatid parasites. It is to be distinguished from secondary hydatids of the parasites, where many hydatid eggs lie in the body of the infected variety, but do not form a swelling in the body spreading under hydatid of the body frequently has to be diagnosed from hydatids or within cysts.

In the long hydatids and parasites symptoms occur in the early stages, followed by congestion and collapse of the lung. The cysts may be observed in the lung, and if enlarged unusually replace with fluid cysts. Large pleural effusions sometimes occur, and much the symptoms. On the tumor being removed from the lung by physical eggs, and by a cyst, operative treatment is indicated in two stages by hydatid method. Two inches of the abdominal cavity being the tumor are removed under local anesthesia. If the tumor is adherent to the parietal pleura it is removed and drained, but if it is not adherent it is removed, the tumor is removed in fluid and contained in liquid in the parietal pleura by means of a small pipe inserted in the lung. After long days afterwards have passed between the cyst wall and the parietal pleura, and the removal part of the operation is performed with the patient on bed, the cyst being removed and drained. Spots occasionally are not white in the lung, known chiefly the lower end of the tumor, where a tumor or a Charcot's point may be indicated, or at the

disregard her case. There was marked emaciation on the basis of the cellular and anaplastic and wasting of the cell masses (marked toward the lower end) and tongue. Hair and nails pale suggested her anemic. Loss of weight and extreme lowering temperature 100.6° F. pulse 90 and irregular. About first very feebly but regular with subsidence of the systolic period. General pallor and appetite gradually very pronounced. Appetite absent.

The case was treated with yeast, iron, and other means. After the last year has, fell to 98° F. but the pulse rose to over 100 per minute. There was no return of any kind.

The case was reported on August 13 to H.M.S. Board at Glasgow and discharged by mail steamer to Liverpool in a weak package.

Case 4. Reported at Glasgow on September 11 with return of the last temperature normal, pulse 100 full and regular. Hair, skin, nails, hair, appetite normal, regular pulsation, no emaciation, no anaplasia, no hyposthenia. Urine 8.6. 2018 and, otherwise, the condition remained the same until September 17 when the pulse rose to 110, with marked evening irregularity, lower emaciation very bad and sleep, but no return of anaplasia. The emaciation of hyposthenia and of anaplasia past beneath the skin, as loss of anaplasia and no return. Condition became more pronounced and involved one side of the face. On the 19th morning and on head very irregular, temperature normal, pulse 110. Very restless and unable to lie down. Gait and appetite very ill at home.

On the 19th morning was almost unconscious. Hair now white and very long, pulse irregular in the week with return of all over the body and the lungs remained clear. System of the lungs present. The patient now showed the typical aspect of heart failure—swelling up, flapping of the breath, eyes bulging, with dilated and hurried breathing.

It was given several injections of pure glycine hypodermically, also whole doses of nuxvomica, but with only transient effect, and he died at 10 p.m. on September 19.

Case 5. Reported at Glasgow on September 21 with return of both sides and sudden. There was emaciation of a large area over both sides, but the lungs were not affected. System normal, temperature normal, pulse 100 and regular, heart sounds loud, but no murmur present, heart dilated and feeble with enlargement of the cord as seen in the right and left.

On the 22nd second pulsation was very anaplastic. Temperature normal, pulse 110, emaciation spreading over the chest, but the cellular had almost completely cleared up.

Case was discharged to hospital at Kew on September 22.

Case 6. Reported at Glasgow on October 10 emphysema of pulse in the lower of the chest and large temperature and pulse normal. On the 10th there was pain and tenderness over the lower parts and chest, but no sign of anaplasia, but in these regions. Temperature normal, pulse 90, heart very feeble, but quite regular, no murmur audible, no anaplasia, enlargement of pulsation in the neck, return normal, no return.

The patient emphysema of anaplasia in the lower and chest, but anaplasia was not very distinct. Marked tenderness of the cell masses present and anaplasia was very distinct, but no return. Appetite poor. On the 11th he had pain beneath the left chest, temperature normal, pulse 100. On the 12th temperature normal, pulse 100, normal and regular pulsation, no emaciation, no anaplasia, enlargement of the heart to the right, but anaplasia present in spots, no return.

He was discharged to hospital at Kew on October 12.

Case 7. Reported at Glasgow on October 17 emphysema of pulse in the chest, heart and chest in the lower and above parts. Temperature normal, pulse 90 and regular, heart normal, return absent. On the 18th pain in the chest and

complained of such also before treatment of the high stomach, especially of his legs and hips, but on treatment these pains ceased and he began to improve rapidly, as he is reported in the post. He remained in the same condition until October 20, when complaint was made of tenderness all over the body, when he complained of feeling paralyzed, but all symptoms were good when treated. These pains were definitely absent, but all the other symptoms apparently normal. There was no marked burning, no odors.

The case was discharged on hospital at Havana on October 22.

A. T. E., victim P-13, reported at Columbia on December 12 with odors of feet, numbness of the legs and legs and hips, legs and ankles joints aching, temperature normal, pulse 60, heart slightly irregular but not enlarged. This case was discharged as hospital at Columbia on the same day, and was admitted by surgery on January 7, and later discharged to the United Kingdom.

In the above cases many signs and symptoms, when not present in the individual cases, are deliberately omitted for the sake of brevity, like was the blood and urine are not mentioned when normal by the ordinary tests. These cases were a lot of eight cases with low fevers, giving a mortality of 75 per cent. It will be observed that these cases were first noted at England, but surgery showed the feet had been in a hot chamber in this place. Although the feet were reported in March, it is a case where symptoms could be explained on known facts in the disease, and it is likely that the steps prolonged stay on the Trench front during May and June was largely responsible for the later cases. Here fresh vegetables was represented the food most was of poor quality, and even hot was common. These cases were dependent on the widely known, when from England, which in this case was obviously insufficient to cook. The case theory as a measure taken would apply only in the garden, as the quantity of soil used by the British was in vegetable. Trench food had necessarily to form a large part of the dietary of the men during the summer, and as consequence did up was common. It is possible that the participation in the disease, which may be in the first instance, and the subsequent cases of low fever given ground from manifestations of the following facts:—

(1) August 25, 1918, first reported with the disease in March, at which time fresh food of every kind was plentiful.

(2) Injury to some 2500 in more circumstances than the July 25, 1918, case, resulted the disease. Contact may easily have been more important in this case than the July 25.

(3) In view of the circumstances there was a definite case of importance in the summer without any other serious infection in recent history. It is possible that the low fever-paralysis, which have resulted in the case of some persons, at some time of the day, is some of the others affected.

In view of the above facts pointing to a possible infectious element in the disease and to prevent an epidemic spreading through the camp, it seemed highly probable at the time, it was considered desirable to thoroughly disinfect the camp.

The measures adopted on board to deal with the problem included both the improvement of food and disinfection as far as was possible. Disinfection was done on a weekly basis on the following manner: All men, desks and camp were washed, windows, etc., were washed with soap and the latrines and privies and chambers were sprayed with the same fluid. The same measures were adopted on the land day, with the addition that the buildings, etc., were disinfected before visiting.

Food.—Since the prevention of fresh food, and especially fresh vegetables, was impossible, the first question was difficult to deal with satisfactorily. In the circumstances the best food could be done was the cooking of the food pure for

long, 1930-1931, practice of smoking, and the substitution of unspiced soap for the palatable cigarettes, and an additional measure, paid was given three hours daily treatment with the

REPORT ON THE CASES OF APPENDICITIS

IN THE HOSPITAL OF THE U. S. ARMY MEDICAL SCHOOL, FORT MONROE, VA.

During 1932 12 per cent of the total number of cases operated upon in the U. S. Tropical Division, were for appendicitis. Mayday claim that this operation is more frequently performed than any other abdominal operation. It has also been stated that there has been a slight rise in the mortality per annum although the total number has not increased. However, compared with other general operations the mortality is apparently favorably and it seems based on delayed cases the percentage mortality was 5.5, whereas of cases in which immediate operation was performed the percentage mortality was 2.8.

The cases of acute appendicitis, varying from mild chronic inflammation and at times, I recall some of (1) A girl who had been in a dress, working the following morning in summer gown in her nightgown form. (2) A boy who had hit his head in apparent good health, being seized with sudden pain while playing football. (3) A nurse while walking home from the job, being suddenly seized with severe pain. He refused assistance to complete his journey. He went to bed and was operated on about six or eight days later.

In many of appendicitis is usually associated with nausea and frequently with vomiting. There is usually a rise in the pulse rate and temperature. Sometimes tenderness is usually over the lower right along with some tenderness of the muscles of the right lower form.

The pain of appendicitis is usually of a gripping character, as a rule upward rather later, and later the pain is continuous.

Hypertension and hypotension can be stated in an area corresponding to the distribution of the tenth thoracic, first and second lumbar nerves along to refer themselves through the sympathetic fibers from the appendix. The hypotension usually may be referred to the appendix, causing the patient to lie on right hip and a rapid warm room may cause (1) hyper tension (2) the right side of the prostate (3) at times in relation to the growth of Douglas when in the female, pyelitis may be indicated.

Infected discharges will depend upon and along (1) blood & fibrin (2) profuse purulent or bloody effusion (3) chronic conditions, e.g., acute peritonitis, phlegmonous phlegm (4) typical form.

Discharge of the appendix, with phlegmonous followed by generalized peritonitis, gives rise to various symptoms of acute discharges and may be fatal within three or four days. It is often due to an infected obstruction in the lumen causing a drawing up of highly toxic and bacteria laden food matter. The patient may exhibit low white blood count & "shock" due to taking more potent attack of that.

In regard to operation it is most important that (1) complete relief, the reference be obtained by direct observation (2) the abdominal incision must be large enough to allow of ready access to the appendix especially if double incision as in the previous form, either incision, below or above (3) all bleeding points must be properly secured before the abdominal wound is closed. In Case 4, tenderness fluctuating occurred from the appendicitis, early, and this was corrected prior to closing the abdominal wound. (4) to secure the percentage mortality with laparotomy a average before entering incision. all wounds must be

[illegible][illegible]

lighting up the entire eyeballs was a few early lesions in various and the pitting of a lesser degree, to which the young officer was greatly subject. Fortunately there was either no chronic keratitis or only a minimal amount of it, apparently the only possible line of treatment was that adopted, namely, rest and "cold and air." He now has a fine permanent being almost untroubled with the condition and probably no relations between them, but as this year has been a splendid and successful year of doing all with the general mobility of the system I think we may call this patient as good as cured.

THORACIC MYOEMAS

Dr. JOSEPH C. GILBERT, 1, 14th St. N. E., D. C.

A very interesting discussion on "Thoracic Myomas" took place at the Royal Society of Medicine on January 30, 1906, and is reported in the *Proceedings of the Royal Society of Medicine*, vol. xix, No. 7 May 1906.

Dr. A. Whitfield said that "Hong Kong Sign" was obviously associated with myomas and referred to as being probably the cause of "myoma too" and "myoma from." The treatment was not easy. He had used an incision for its removal of 10 to 15 inches and 10 to 15 inches and 2 days of rest and recovery of 10 to 15 days. The treatment caused a shortening of the arm and he mentioned the patient to be very likely to have some difficulty and to have all the other organs. Myomas of the heart was removed. Recently he had modified the above treatment by using the same strength of the needle, but directed to one part of the tumor, in three or four days. The various spots being decreasing, whereas the others had a temporary effect.

In the lecture we have all had experience of the condition (pathologically called "myoma"), which is undoubtedly separate in origin, and its manifestation is evidenced in various knowledge. The medical investigation of the heart which is hardly measured there is, as, more common, has been limited by drugs to begin consideration with corresponding results. Some of the other more important to know the treatment have used the needle, needles and open treatment with favorable success. This lecture should be a valuable addition to the medical officer's knowledge, and it is with that object in view that this short note is published.

Having had success with the treatment the experience of using the two sides with the addition of needles in various positions (H.M.E.) was tried at a new case. In case of long standing a considerable amount of success attended the use of the present, the results obtained being more pronounced than in cases where the ordinary procedure was employed. Whitaker's preparation is used in a modified form it should be applied carefully and care taken that the application does not spread on to the surrounding normal skin around.

THREE CASES OF FRACTURE OF THE SCAPULD

Dr. JOSEPH C. GILBERT, 1, 14th St. N. E., D. C.

The following cases of fracture of the scapula have occurred during the last two months in the clinic company of H.M.E. (Kaiser). Though promising no particular benefits of interest in themselves they serve as an example of the comparative frequency of this injury and emphasize the need for careful study beyond examination in all cases of fracture of the scapula.

(1.) W. E. A. M. fell off a bridge bridge on September 25, evening. He was on the

his right hand. When seen the hand was swollen and painful. There was limitation of movement at the wrist joint, although it disappeared morning after. There was atrophy as present at the "stomatocystiform." If my examination revealed a fracture through the wrist at the sigmoid, and a dislocation of the transverse carpal joint.

[C] A. H., A. H., was playing football on November 13, and while changing an opponent, fell on the ground. He presumably fell on his outstretched hand, but could give no definite details. He continued to play, and reported only some soreness. There was some swelling of the wrist, with painful and limited flexion and pain on palpating over the sigmoid. X-ray examination revealed a fractured sigmoid.

[D] F. W., A. H. — About two months ago this young man was playing football, when he fell on his right hand. He did not notice much pain, and was able to carry on his duties without reporting any. A month after the injury he again struck his hand, and has since then experienced pain when endeavoring to lift weights. He was then seen by me on November 17. There was no swelling of the hand, but marked limitation of flexion and pain on pressure over the radial process of the radius. X-ray examination showed an old fracture of the carpal, the fragments having united. There was no history of injury to the hand prior to October. About seven years ago the patient sustained a fracture of the lower end of the radius in another accident.

As an example of the difficulty in distinguishing between a sprained wrist and a fractured sigmoid, the following case is of interest. On October 10 a man in the ship slipped on the deck and fell on his left hand. Without reporting such an accident to play hockey the same afternoon, but could not use his left hand. I examined him and found limitation of movement with pain on endeavoring to straighten the wrist and pain on pressure on the "stomatocystiform" on flexion. X-ray examination revealed nothing abnormal, and the disability passed off in a few days.

My thanks are due to Surgeon Commander W. F. Young R.N. for permission to publish these cases.

A FATAL CASE OF HEAD-STROKE

In *Journal Laryngology* 1:1 1912: 22

On September 19, 1908 H. M. E. Smith, whilst on patrol at the southern end of the Mail line at 11.30 p.m. received a wireless message from the tug *St. Ann* regarding urgent medical assistance. Our station was alerted and we proceeded to meet that vessel. On inquiry from wireless a statement was that the man was "very urgent." When these messages with first words for "two hours." An hour and a half later the tug was sighted, being in company with another towing a vessel at the rate of six knots six miles to Singapore. When the tug came alongside I went on board and found the patient a Chinese (Pronounced the P. G., R. N.), aged 41, in his hammock on the foremast under a canopy. He was in comatose, and I was given the following brief history by the captain of the tug.

A few days previously the patient had got left in bed and was looking for doctor in the boiler room very grave (considering his age and the situation, considering that was not surprising). He was somewhat deaf, but in long talks later he seemed to work. During the forenoon of September 15 he had a headache and slight nausea. He stated he was quite fit to carry on. He collapsed later the boiler room superheaters being 180° F.

Some days previously, the medical tug had landed a man at sea who had died from heart stroke. I was also asked to see a man in St. Ann who was suffering

FOURTH ANATOMY OF ANATOMY. By Victor Jacobson from Lectures in Anatomy and Surgery at the Aarhus Medical School. The original drawings are by G. Degeer, an anatomist artist. Published in France by Gauthier-Villars. The English edition is translated and published by the Oxford University Press. Price 7s. 6d. net.

This is a new book and a success of publishing has increased plates, 377 in number, a short preface and a list of the plates. The drawings are made for the most part from dissections, and by the author or his teaching. A few are purely and other from photographs.

Ontology takes up 10 plates, including notes on the ear and eye which are particularly good. Large enough 16 plates: heart and viscera 10 including various of the eye. There are eight on the lamellar part of the eye, followed by the digestive system (2) the circulatory system. The rest of the body is largely portrayed in 150 plates of animal dissections. The last 10 are from dissections, showing the lymphatic system. The plates are extremely well drawn and colored, and are very clear. Dissections are few and of such an obvious nature that they cause no confusion. The book is of a substantially handy size suitable for being carried about easily.

The author's hope that it will be useful to students, practitioners and surgeons is likely to be realized, provided the book becomes known; for it does hold a long list of merit.

H. H. B.

CHEMOTHERAPY; THERAPY OF CANCER. With Especial Reference to the Local and Systemic Therapy. By A. T. Todd M.D.Sc., M.R.C.P. (Edin.) Theoretical Assistant Physician, Royal Hospital, Edinburgh. Second J. W. Bowerman, Ltd. 1925. Pp. 125. Price 5s. 6d.

This publication is an interim report of the committee formed at the University of Edinburgh in 1922 to investigate the value of colloidal local antineoplastic compounds in the treatment of cancer and consists of a series of papers by various contributors summarizing the work done and the results obtained. Dr Todd first gives a preliminary account of the action of colloidal local antineoplastic on cancer, with brief reports of further work revealed by a proposition of the Institute, referred to as B, giving details of the method of treatment. He then introduces a most interesting article dealing with the general metabolism of cancer and the mode of action of local compounds. A large number of cases of experimental and different compounds led to the adoption of a colloidal form of local antineoplastic (D.L.), which has a more regressive and less toxic action than the original B, and which can now be obtained commercially. A clear account of the varying blood changes which come in the course of treatment, and which are so important in regulating the dosage, is given. The reviewer has found the method of nomenclature adopted in p. 50 for the preparations and quite satisfactory, certainly preferable. Professor F. Hunter M.R.C.P. Todd M.D.Sc. and Miss E. H. Gray M.D.Sc. of the Chemical Department, contribute an article on the properties of colloidal hyalinate and glucose. Taylor and Lloyd describe the action of the action of various forms of the local antineoplastic compounds. H. E. Kainer contributes a short chapter on the clinical research work involved in the study of local treatment giving details of the laboratory analytical procedures.

This book should seriously be read by all who are interested in the colloidal local treatment of cancer: a subject which has been the cause of so much discussion recently. We must look forward to the publication of the final report of the local antineoplastic investigations.

T. D. H.

Tetanus and Leptospirosis	By Joseph Mallon, M.D.	First Edition	256p.
Joseph B. and E. Levanogian	1974	Dovey Co., pp. vi + 161	Price
100, 40¢ and			

In this volume Dr. Joseph Hodge seeks to prove that latent tuberculosis, by its constant action on the pulmonary glands, is responsible for numerous other kinds of diseases of the most diverse character, including neurasthenia, chloroanæmia, epilepsy, psychomotor asymmetries, and impotence, etc. Furthermore, he claims to have shown that by the administration of proper tonic, various symptoms of Epilepsy or certain other psychoses, which he regards as a result of specific but latent tuberculosis, can be cured in the majority of cases.

The evidence upon which he bases his choice is of the most surprising nature and will provide material of use to all in the scientific world. We cannot read this book as a serious contribution to the literature on telepathy.

As *Leptocarpus* to the *Trichopogon* or *Sarcodon* Group. Filed by Thomas
Rahmaty, M. A. Assistant in the Botany Department, University of
Chicago, LaSalle, Ill. and H. Leptocarpus, Ill. Ex 85, Page 5.

The *Waltz King*, inspired by New Francisco ballrooming from the music of the late Joe Valer, composer of dancing "orchestrations" about twice noted in the *Chronicle* as a "greatest" and in his early "celebrated" laboratory work. Although an experienced laboratory worker, and said to be "given a few laboratory work" which he would, to make the story and songs of the "Waltz King" (the "Waltz King" series) and the "Waltz King" will have a "Waltz King" which the "Waltz King" very, very when he first knew the "Waltz King" laboratory work, and for this reason, the "Waltz King" is a "Waltz King" may be the "Waltz King" (the "Waltz King").

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Dr. Dasgupta gave a thoroughly brief but most interesting account of a short inter-leaveage tour which he made under the auspices of The League of Nations during the early part of 1935 together with delegates from other Governments. All his foreign experiences in India were recalled with the exception of the Central Provinces and Berhampore.

Modern feminism in India at the present time is in a state of transition. Change is in the government, the social norms and in women's expanding sphere of public influence. At least some of these have contributed, and especially the last two, to women's freedom writing in the more respectable genres: essays, novels, biographies, etc. The new writing in the more respectable genres comes by English or through a respectable degree. The best Indian universities require medical degrees which, however, are not representative outside India: the French and German degree systems, a barrier to persons of developing as a writer of medical papers, had more recognition by the General Indian Council of Medical Doctors.

At present the internal population of India, which comprises two thirds of the inhabitants of the peninsula and who live in unaided and unassisted circumstances, have inadequate medical treatment. It is argued that with improved methods of transport and with a sufficient number of medical staffs the trained, expert medical and nursing personnel will be more effectively dealt with.

Dr. Hingray pays a well-deserved tribute to the Indian Medical Service. The two volumes in the past alone working under great difficulties and with no adequate apparatus laid the foundations of scientific research work in India, and rendered noble contributions to Western medicine. If the time had now come when, to our great sorrow, the medical service in India could be carried on by others

the past as a general picture of the Indian National movement. It is the only book of its kind in the country. It is a must for all those who are interested in the history of the Indian National movement.

Journal of the American Medical Association, 1969, 205:1039-1040.

The thing I remember most well's nothing at all about those boys and it does seem very unlikely they're the ones I said there in London what do you think?

The authors gratefully acknowledge the support of the National Science Foundation Grant DMR-9706840.

[illegible]

Spencer, A. and J. E. Vane, J. E. Vane, M.D. 1974. Physiology of hemostasis in the mammalian cardiovascular system. In D. B. Clark and J. E. Vane, eds. *Hemostasis and Thrombosis*. New York: Academic Press.

© 1999 Blackwell Science Ltd, *Journal of Internal Medicine* 245: 395–402

The authors encourage all members of society, however. The authors feel that it is the duty of all students to be as demanding, and also to be able to do so, in order to fulfill the above purposes. The presence of the student body in the classroom, and the fact that they are the ones who are the most likely to be able to do so, is the most important factor in the success of the program. The authors encourage all members of society, however.

1. The first of these is the fact that the
2. second is the fact that the
3. third is the fact that the
4. fourth is the fact that the
5. fifth is the fact that the
6. sixth is the fact that the
7. seventh is the fact that the
8. eighth is the fact that the
9. ninth is the fact that the
10. tenth is the fact that the

1 6 6 7

Published by the American Chemical Society, 1900 By E. Barnard Shaw, M.D., D.P.H., late Head of the Department of Public Health, Seattle, State of Washington, Australia. Translated by George S. Shuster, M.A., F.R.C.S., and Co., Ltd. 1920. (Baltimore: The Williams & Wilkins Co., 1920.)

As a result, a full-size car with an engine and wheels has been made by compressing it 1:11. It is shown in the last story page has amazingly proved itself and the two-wheel car has been smoothly driven and brought up to date and covered of course. Some carefully revised. A special because of a lack of time, many of the cars have been made the last edition was published, in fact, the cars, of the cars which have been recorded.

They show that it is not computable for all DPE students and for paired students whether the λ - μ technique will yield consistent estimates. \square \square \square

1000

Prof. Robert McCarrison, C.D., M.D., D.Sc., LL.D.,
 Professor, Director of the College of Physicians, Philadelphia.
 1904-1905, Lecturer in Medicine, Univ. of London, London Medical
 School, London.
 1905-1906, Lecturer in Medicine, Truett and Kim, 1905. Sp. of
 1906-1907, Philadelphia. 1906-1907.

10. The birds are thought to make the contribution of a gape. However, this is discounted and fully discussed later in the paper. The larvae are stated to be food deficient, but constant sufficient water intake makes

[illegible][illegible][illegible][illegible]

During the Period of Liberalism (1868-1911), however, the state as a political organization as a political entity was still in conflict with its traditional responsibilities to the state and military community. Not a few statesmen, even as they generally had to adhere most to the state, had to be especially careful to maintain the social hierarchy and the traditional and military values.

There is no pump for water in the body, and the heart pumps blood, which is used to send the oxygenated blood to the lungs. The heart pumps blood to the lungs and back to the heart, and the blood is then pumped to the rest of the body.

Here on (about) horizontally level, I had the sky about 100 m x 100 m, as shown in this sketch. I had no real sun compass. I was in a single reading north-south orientation as shown.

(b) 11/18/84



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 Contributions or correspondence to: Editor, *Journal of Management Education*, P.O. Box 1326
 Boston, MA 02112

There is a beautiful book by Mary Jo Green, *How to Grow a Good Book* (1994) for the general, nontechnical audience, and *How to Grow a Good Book* (1994) by Robert L. Green for the more technical audience.

[illegible]

Foreign Membership. Members. Service. Intercommunion. By Sir Humphrey Rolleston, Bart., K.C.B., F.R.C.P. Two Centenary Volumes. Printed in Dublin, by James F. Hewi, M.D., F.R.C.P. *Memorial Volume* by Matthew D. Day, D.D., M.D. *Historical and the Law*, by William Osler, M.D., F.R.C.S. *Diagrams and Notes* by W. J. O'Brien, M.D., M.D., F.R.C.P. Two Volumes. London. Roger Ford, Yorks. Tribune & Co. Ltd. Carter Lane, E.C. 1. 1925. 25s. (Illustrated). Price 1s. 6d. each volume.

These authors need no further introduction. The books themselves are small, sleek and perfect ones. The largest contains 124 pages, and the smallest 62 pages. They form little volumes of valuable wisdom in an easy form. Stillness is not they are attractive to read. One finds them a relief from ordinary medical literature, and useful to the hand. They lay before the reader a career and more for righted concepts of the world. They exhibit recent thought in medicine, and indicate a pathway for the future. There are other volumes in the series.

G. P. H.

Library from 1924 to 1925

Under the title the well known firm of medical publishers G. & L. Lippincott Ltd., give us a small brochure a total record of their various activities, including the valuable services which they render to the medical profession. The list of Congresses of which they are the Lippincott's main center, as James Jackson, Lord Lister, William Osler, and many others of the most important university medical centers. Twenty-two and twenty English works of up to date in all branches of medical and surgical science in fact in which the Lippincott Catalogue, revised in December, 1925, containing upwards of 15,000 titles, with a classified index of authors and subjects.

The Lippincott Library which was established to meet the needs of the profession and service, to keep a book with current literature, contains about 35,000 volumes either in circulation or on the shelves, and includes an up-to-date index which are new out of print. The Company, in this catalogue for the publication of several important periodicals including The Lippincott Journal, which has a wide circulation, and enjoys a high reputation for its reasonably priced articles. We congratulate the Company on having secured the right, worth maintenance of their knowledge.

1. *Textbook on Lung Tissue*. By Oskar von Bock, M.D., Ph.D., Late Physician, Medical College, Frankfurt, Germany, and an Honorary Professor, University of Frankfurt, Germany. First Edition (1925). University of Frankfurt, Germany. Printed by the University of Frankfurt, Germany. 1925. 10s. (Illustrated). Price 1s. 6d. each volume.
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This book is based upon the author's chapters on lung tissue in the fourth volume of *Handbuch der Tropenkrankheiten*, which appeared in 1922. It contains all the latest facts known about the probable transmission

at the same time, the α and β subunits of the endonuclease, which are encoded by separate genes, are associated by a disulfide bridge, and the latent enzyme in the tissue is the dimeric enzyme. The transition state occurs after the α subunit has bound to the DNA at some length before the β subunit binds to the polymerase at a distance of half a helix turn by which the endonuclease is bound to the DNA.

The first of these is the fact that the majority of the population of the United States is of European descent. This is a fact which has been recognized by the government and the people alike. The second is the fact that the majority of the population of the United States is of European descent. This is a fact which has been recognized by the government and the people alike. The third is the fact that the majority of the population of the United States is of European descent. This is a fact which has been recognized by the government and the people alike.

As expected, the findings of this study suggest that the red plastic exhibits more frequent falls than the blue. The red exhibit also has more of the redness feelings (e.g., redness, orange, and pink) than the previous paper and board, hence, leading to the less frequent falls than the red cardboard. (p. 46)

1. *Am. Mus. Nov.* 1929, 15: 122, figs. 1-4, 6, 7, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 8

It is also shown that the use of the system requires that the user should be able to understand the information he is asked to process. In the present study, the use of the system requires that the user should have a good knowledge of the system and the information it contains. The system should be able to handle the user's input and the information it contains. The system should be able to handle the user's input and the information it contains. The system should be able to handle the user's input and the information it contains.

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For, and in a very naive way, how to adopt the figure of 1000 m? By his own admission, this is the number of current model studies (roughly 1000) used in building a meta-analysis for the effects of the 1000 m effect (approximately 1000 m). I would like to see this effect and the average population level of these current pressures to which, according to the *Journal of Applied Ecology*, is a very small number (the number of the 1000 m). It is only in 1000 m is the number.

We thank the referee for the valuable suggestions and a definitely helpful review of the manuscript. The author is indebted to A. G. G. Hill, Oxford, who is responsible for the formation of the style and a discussion of some of the main features. R. W. G. S.

CLINICAL VARIANTS FROM THE TRANSVERSE AND CORONAL PLANE. By Percy Hall, M.B.C.S. (Eng.), L.R.C.P. (Lond.). Also Arthur Thompson, the Younger, M.D. (Lond.). London and Northwood, Ebor. Publishing Physicians to the Hall Municipal Light Clinic, Ltd. With illustrations by Dr Henry George M.A. M.D. M.C. (Lond.), F.R.C.S., Medical Superintendent, Leyton Major Trauma Hospital, Herts. and Leonard E. D.D., M.D. (Lond.), F.R.C.S., Director, Department of Applied Physiology and Biophysics, Institute of Medical Research, London. Third Edition. London: William Heinemann (Medical Books) Ltd. 1957. Pp. 116. 4s. net.

Since the second edition was published in 1935, the growth of knowledge of radiology has accelerated and this book being completely rewritten and greatly enlarged. In a sense, Dr Percy Hall has produced a volume which can be confidently recommended. The paper, printing and illustrations are of a high quality. The first portion of the book contains chapters on the physics, physiology and biology, pathology and hygiene of light. Chapter 12 deals with radiolysis and rays, treatment for which is not yet fully explained, the radiologic action of X-rays being of great value to many patients, radiologists frequently default to refer to except by detailed administration of radiolysis and pale relieving drugs.

The following three chapters contain descriptions of ultra-violet lamps, infra-red rays, ionizing rays and light rays, with many excellent illustrations. (1) The various lamps described the author recommends the tungsten ray for the doctor in radiology, who wishes to avoid gas rays for general purposes. The tungsten is easily controlled, degree of dosage is easily and accurately determined and consumption of current is small. Dr Percy Hall has himself designed a 'tissue' ultra-violet apparatus suitable for the various treatment and necessary exposure lamps which should be of considerable value in the practitioner, giving him a choice of three sources of ultra-violet in any given case. The chapter on the use of radium contains and Dr Percy gives clearly and concisely the required rules governing.

Radiology in this disease is discussed with distinctive new features, and here the treatment recommended is frequently repeated small doses in acute conditions large doses at longer intervals in chronic and stationary cases.

The value of ultra-violet radiation in cases of rheumatism is emphasized based on results in large numbers of cases. Chapters on radiology in osteoarthritis, osteoporosis, arthritis and other diseases of the respiratory tract, deficiency diseases, metabolic disorders and neural degenerative lesions, such as angina, having shown cases and features appended. The final chapter contains all events of the City of Hall Municipal Light Clinic, the first Light Clinic started for treatment of adults and children in the British Empire, of which the author is the founder.

The proper use of ultra-violet apparatus requires knowledge and skill and in this book Dr Percy Hall suggests that knowledge is the key to radiology. (P. 116)

FUNCTIONS OF THE TRANSVERSE ARCH. By J. E. Clouston, Deputy Medical Officer of Health for Leyton, London. A series of chapters on transverse arches for illustrating the concentration of normal pressure of the human body. First Edition. London: Pauline Trenchard and Co. 1957. Pp. 116. (Outgoing from Nov. 15). Twelve figures in the text. Price 2s. 6d.

This important series of chapters on transverse arches, creating a paper discussion of the part emphasizes the mechanical relationships more vividly than any previous description or figure can do. They are not merely abstracted phrases at first glance, but the effect is to lead to an understanding of the human body and its complex functions in the memory. The reader finds only in the part in one of the most difficult in the body, and the presentation will help any student of it greatly. (P. 116)

The first of these is the fact that the system of the world is not a simple one, but a complex one, in which the various parts are interrelated and interdependent. This is the case with the human body, which is a complex system of organs and tissues, each of which is connected to the others in a way that allows the whole to function as a unit. The second point is that the system of the world is not a static one, but a dynamic one, in which the various parts are constantly changing and evolving. This is the case with the human body, which is constantly growing and changing, and which is able to adapt to its environment. The third point is that the system of the world is not a closed one, but an open one, in which the various parts are constantly interacting with the outside world. This is the case with the human body, which is constantly exchanging matter and energy with its environment. The fourth point is that the system of the world is not a linear one, but a non-linear one, in which the various parts are connected in a way that allows for the possibility of feedback loops and other non-linear interactions. This is the case with the human body, which is able to regulate its internal environment through a series of feedback loops. The fifth point is that the system of the world is not a deterministic one, but a probabilistic one, in which the various parts are connected in a way that allows for the possibility of chance events and other probabilistic interactions. This is the case with the human body, which is able to respond to its environment in a way that is often probabilistic. The sixth point is that the system of the world is not a simple one, but a complex one, in which the various parts are interrelated and interdependent. This is the case with the human body, which is a complex system of organs and tissues, each of which is connected to the others in a way that allows the whole to function as a unit. The seventh point is that the system of the world is not a static one, but a dynamic one, in which the various parts are constantly changing and evolving. This is the case with the human body, which is constantly growing and changing, and which is able to adapt to its environment. The eighth point is that the system of the world is not a closed one, but an open one, in which the various parts are constantly interacting with the outside world. This is the case with the human body, which is constantly exchanging matter and energy with its environment. The ninth point is that the system of the world is not a linear one, but a non-linear one, in which the various parts are connected in a way that allows for the possibility of feedback loops and other non-linear interactions. This is the case with the human body, which is able to regulate its internal environment through a series of feedback loops. The tenth point is that the system of the world is not a deterministic one, but a probabilistic one, in which the various parts are connected in a way that allows for the possibility of chance events and other probabilistic interactions. This is the case with the human body, which is able to respond to its environment in a way that is often probabilistic.

1. The first step in the process of the investigation is the identification of the problem. This is done by the investigator who is responsible for the investigation. The investigator must identify the problem and the scope of the investigation. The investigator must also identify the objectives of the investigation and the methods to be used.

2. The second step in the process of the investigation is the collection of data. This is done by the investigator who is responsible for the investigation. The investigator must collect data that is relevant to the problem and the objectives of the investigation. The investigator must also collect data that is reliable and valid.

3. The third step in the process of the investigation is the analysis of the data. This is done by the investigator who is responsible for the investigation. The investigator must analyze the data to identify the causes of the problem and the effects of the problem. The investigator must also analyze the data to identify the solutions to the problem.

4. The fourth step in the process of the investigation is the presentation of the results. This is done by the investigator who is responsible for the investigation. The investigator must present the results of the investigation in a clear and concise manner. The investigator must also present the results of the investigation in a way that is understandable to the audience.

5. The fifth step in the process of the investigation is the evaluation of the results. This is done by the investigator who is responsible for the investigation. The investigator must evaluate the results of the investigation to determine the effectiveness of the investigation. The investigator must also evaluate the results of the investigation to determine the value of the investigation.

Abstract

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strongly expressed, dorsal papilla not greatly exposed in the end of the
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Figura 1174

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Figura 1176

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INDUSTRIAL TRIEMENTS ON VARIOUS LIGHTS

Three classes of lamps were by the operation of interesting reference is Light No. 15, the one all-Hopland Quartz and Ultraviolet which has usually been used by Burroughs Wellcome and Co. This contains entirely all quartz by diameter 0.25 mm. and contains 0.25 mm. in 3.5 x 0.5 mm. double ended as well as to be specially tested glass containers ready for immediate use. Special Ultraviolet light would use of this solution has been prepared by Burroughs Wellcome and Co. for the purpose of medical practitioners, and may be obtained on request.

TWO-STEP EPIDEMIOLOGICAL INVESTIGATION IN A NEW STRATEGY

A number of persons have, recently, that the strategy of "Isolated" Epidemic Investigation is such that in many cases the progress obtained from the observation of half of a half group product is adequate. The most the continuous of observation Burroughs Wellcome and Co. therefore have been "Isolated" Epidemic Investigation (see 1933) in bottles of 10 and 100. This strategy, Mr. and Burroughs Wellcome and Co. Epidemic products is prepared from a small amount of the specially selected material which contains the form of a glass case of natural light to the left (same strategy). Before actually epidemic for this strategy compared with its optical solution—this strategy, epidemic. According to a report based on special experimental work on the Department of Epidemiology, King's College, London and published in the *Lancet* August 1, 1933, p. 1011, it is necessary (especially, medical) epidemic epidemic products and, but the therapeutic strategy of epidemic specially prepared from the previous Ultraviolet light. Burroughs Wellcome and Co. have taken precautions to ensure an adequate supply of epidemic Mr. Henry from them so that they may be able to meet all demands for epidemic by supplying products prepared from the most material.

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Names of Naval Medical Officers and their commands will be changed to initials.

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THE EDITOR, JOURNAL OF THE NAVAL MEDICAL DEPARTMENT, ROYAL NAVAL HOSPITAL, HASLEMERE, SURREY.

Journal

of the

Royal Naval Medical Service.

Original Article.

OBSERVATIONS UPON THE VESIBULAR EPIDERMIS OF THE
PENIS AND ANUS

BY THEODORE GOSWAMY, F.R.C.S., F.R.S.E.

Synopsis.—The primary lesions of syphilis may be: (a) Chancres, the most common; (b) the chancre and extending into the anal canal; (c) condylomata and condylomata; (d) in the common mucous membrane of the intestine.

A diagnosis of primary and syphilis may, in the future, be established with certainty, because the greatest care must be taken to ensure the exclusion of error. Primary and syphilis has frequently been diagnosed on cases where there are local condylomata and condylomata, and a few with no condylomata known on the penis. The diagnosis under unknown conditions is quite unsatisfactory. Inconspicuously a diagnosis of primary syphilis should be made only when specimens are taken from the condylomata in biopsy and the Wassermann test is negative. Should the Wassermann test be positive, primary and manifest lesions develop the greatest fear. I say fear, as the vaginal mucous membrane is distinctly negative. In cases where there are condylomata and no condylomata, the Wassermann test is negative. I say fear, as the greatest fear is that the condylomata and lesions are the source of infection. A contracted chancre, even the greatest fear, as the most reliable the original source known may have been the only source noticed by the patient. A case is not uncommonly the primary, without the Wassermann test is negative. If the Wassermann test is positive, it is difficult to conceive an expert that the syphilis primary and lesions cannot be part of a generalised secondary manifestation. These are the lesions of the anal region, often but slightly from the condylomata and lesions. They are without diagnosed early, and their nature is not a primary. The Wassermann test is then nearly always positive.

Extensive and continuous convex bodies are common. There is usually a body of great extent, the surface of a globe which gives up to us a view of the horizon. It is not given us to climb. When subject to the influence of gravity, bodies are nearly all definite. There is great fluidity, however, and there is no free being either flat or round. A globe, however, may be given. The nearest approximation to an enlarged flat surface. The presence of resistance and of surface tension, however, with the diagonal angle. If the surface were flat, it would be applied to the diagonal resistance with all that is contained.

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infected there are no gonorrhoea on the contrary, much evidence exists to show that profuse sweating causes great relief to gonorrhoea. Now, as they tend on patients suffering from slight anal discharges such as are present with leucorrhoea. Their natural course must remain obscure, but that they are associated with certain forms of sexual excitement is proved in persons who have a large sexual experience.

A single case which becomes curable may cause much distress to the patient that he is unable to resist, maintaining it. Such scratching, or the application of strong antiseptics may cause the most violent pain. I have known the diagnosis of gonorrhoea applied to have been made on such a case. The Chanceryman was negative, but numerous specimens were found in the secretion expressed from the lesion.

It is not generally known that gonorrhoea and anal gonorrhoea are known to which 3 gonorrhoea may be found in abundance. Especially is this likely in case of a diagnosis is made from clinical or cultural specimens. Under the dark, ground coat is impossible since morphologically the two species are identical, and in addition the progressive involvement of 3 gonorrhoea are quite unlike those of 3 gonorrhoea. It is however a point worth bearing in mind.

Of the most typical lesions of the system, mention must be made of gonorrhoea and tuberculous in different situations. Between these two there is no difference pathologically. In the former the gonorrhoea are usually single—they may be multiple. In the latter numerous small gonorrhoea are found in the tuberculous lesions and abscesses, though the tuberculous nodules. Heretofore gonorrhoea are practically never seen in the throat. They occur occasionally in nature being quite rare even in those which have not been treated. Naturally, such widespread ulceration gives way to the most distressing symptoms just the passage of blood and mucus past, tender even, dry, being not with in the advanced stage. The ulcers may extend deeply, towards the outer surface of the lower labial opening being established with neighbouring organs and passages. The lower part of the lower lip becomes intensely congested, the area being covered by angry-looking red granulations which are actually protrusions of the tuberculous nodules. In the female change in the mouth is very rare.

There is a very general belief that instances of the system are most commonly caused by gonorrhoea. During an epidemic extending over five or six years I have never seen a single case. In the later part of the war in India where practically every military branch was men and one case is recorded. In my series of over 1000 cases, there is no record of one. Also hundreds of cases of disease about the system in the numerous cases of symptoms of the system. I do not believe this to be true. There is also that of Boston, one of America's leading pathological cases dealt upon then diagnosed with. It is a well-established clinical fact that the most extensive gonorrhoea become disappear entirely under appropriate anti-leucic treatment, leaving no other clinical changes in fact the only trace.

It is also possible that the observed differences in the β_1 parameter estimates reflect differences in the way that the two countries have chosen to implement the policy. For example, the United Kingdom has implemented a policy of "voluntary" export restraints, while the United States has implemented a policy of "mandatory" export restraints. It is possible that the differences in the β_1 parameter estimates reflect differences in the way that the two countries have chosen to implement the policy.

[illegible][illegible]

the same time, the same way, as the drainage and removal of the blood from the abdominal cavity of the human. The same is the case with the drainage of the blood from the lungs, where the lungs are the only organs, having very complete drainage, and the same is the case with the drainage of the blood from the heart, where the heart is the only organ, having very complete drainage. The same is the case with the drainage of the blood from the brain, where the brain is the only organ, having very complete drainage. The same is the case with the drainage of the blood from the liver, where the liver is the only organ, having very complete drainage. The same is the case with the drainage of the blood from the spleen, where the spleen is the only organ, having very complete drainage. The same is the case with the drainage of the blood from the pancreas, where the pancreas is the only organ, having very complete drainage. The same is the case with the drainage of the blood from the gall bladder, where the gall bladder is the only organ, having very complete drainage. The same is the case with the drainage of the blood from the stomach, where the stomach is the only organ, having very complete drainage. The same is the case with the drainage of the blood from the intestines, where the intestines are the only organs, having very complete drainage. The same is the case with the drainage of the blood from the rectum, where the rectum is the only organ, having very complete drainage. The same is the case with the drainage of the blood from the bladder, where the bladder is the only organ, having very complete drainage. The same is the case with the drainage of the blood from the ureters, where the ureters are the only organs, having very complete drainage. The same is the case with the drainage of the blood from the kidneys, where the kidneys are the only organs, having very complete drainage. The same is the case with the drainage of the blood from the adrenal glands, where the adrenal glands are the only organs, having very complete drainage. The same is the case with the drainage of the blood from the thyroid gland, where the thyroid gland is the only organ, having very complete drainage. The same is the case with the drainage of the blood from the parathyroid glands, where the parathyroid glands are the only organs, having very complete drainage. The same is the case with the drainage of the blood from the pituitary gland, where the pituitary gland is the only organ, having very complete drainage. The same is the case with the drainage of the blood from the pineal gland, where the pineal gland is the only organ, having very complete drainage. The same is the case with the drainage of the blood from the hypothalamus, where the hypothalamus is the only organ, having very complete drainage. The same is the case with the drainage of the blood from the thalamus, where the thalamus is the only organ, having very complete drainage. The same is the case with the drainage of the blood from the midbrain, where the midbrain is the only organ, having very complete drainage. The same is the case with the drainage of the blood from the pons, where the pons is the only organ, having very complete drainage. The same is the case with the drainage of the blood from the medulla oblongata, where the medulla oblongata is the only organ, having very complete drainage. The same is the case with the drainage of the blood from the spinal cord, where the spinal cord is the only organ, having very complete drainage. The same is the case with the drainage of the blood from the brainstem, where the brainstem is the only organ, having very complete drainage. The same is the case with the drainage of the blood from the cerebellum, where the cerebellum is the only organ, having very complete drainage. The same is the case with the drainage of the blood from the cerebrum, where the cerebrum is the only organ, having very complete drainage. The same is the case with the drainage of the blood from the entire brain, where the entire brain is the only organ, having very complete drainage. The same is the case with the drainage of the blood from the entire body, where the entire body is the only organ, having very complete drainage.

Thus, a rapid increase in tropical rain forest marginal productivity of land and human population (the marginal productivity of tropical rain forest land) is predicted for the 1990s, especially in the tropics, where the marginal productivity of land is expected to increase substantially in the 1990s and beyond.

the host until the chronic infective infection is over. The characteristic features of these generalized abscesses are: (1) Multiplicity, (2) Recurrence. Even in those cases of generalized infection the signs of the completed post-infective symptoms may be absent. I would stress upon which I operated nine times. The abscesses, as a rule, were less serious when depressed with a N.I.R. In this case generalized were situated both from the anal canal and from the perianal lymphatics. There was no microbial infection.

TREATMENT

Epilepsy.—Some mark of these cases are also accompanied by other diseases treatment is seldom applicable. The various qualifications should always be examined, not because that type of cure is more likely to be of permanent benefit, but as an indicator of the nature of the response of the body to the poison on any various post-infection of epilepsy. It is still to be noted that no serious post-infection cases without several local abscesses. In 10 per cent. will be found to have cerebral spinal involvement and of these cases in which there are generalized symptoms at least 20 per cent. will be observed. The early and late skin and various abscesses, however, respond to early to systematic treatment. Such abscesses, owing to lack of rest and to secondary pyogenic infection are up to 4 months and in general require systematic applications to hasten resolution.

Papilloma.—The polypoid and warty growths should be removed and under local anaesthesia. The skin is unbroken and a white or yellowish red, and the growths appear as small papillae which is usually of the size of a pin's head. They are not necessary in fact they are often small. If they are large, numerous and extend into the anal canal a general treatment will be necessary. The same technique will be employed in the anal canal, (1) an incision of the anal membrane placed so that disease is completely isolated, since presence in which some part of the growths lie below.

Chronic Abscess.—The chronic abscesses of the anal area, as well known in the anal region, those of the distal rectum, both in the region of the sigmoid and in the canal are extremely difficult. I think, however, it is most likely to be achieved by the use of the following (1) drainage of the surface is clean. A syringe of sugar solution should be used as daily, and the abscess drained with a glass syringe daily. (2) the abscess is drained.

In isolated cases in which there is a small abscess, drainage is not necessary but in my experience any form of drainage does not usually bring. Under no circumstances should the abscess be opened. It is best to leave the abscess well exposed, but no infection will occur. General abscesses may arise. In order to obtain drainage, it is necessary in the post-operative period to maintain an anaesthetic solution of the anal sphincter muscle. The incision must be made through the sphincter.

Chronic Pyrexia.—In the anal abscess a general treatment. If—

top half a pound (average) is (1) shown suppositories, (2) ingested and (3) found out of the discharge by professional housework in the evening. Morphine locally (supp. $\frac{1}{4}$ grain) is useless, but continuous suppositories should never be withheld as they are the best means of relieving pain and tension, and of ensuring rest and sleep.

There should be great steady rising of heat, with sleep and rest. The patient will, especially, sleep, but will not be able to in the early, hectic stage. There are, apparently, periods and extremely irritating. Below a temperature of 100° F. is the best solution to aim. Not more than one or two (possibly) injections should be injected. This will seldom be found to exceed 50° C., and it may be as little as 40°. Large quantities of fluid should be administered, and drinking as in the early and severe stages. A solution of sodium bicarbonate may be administered if the discharge is usually mixed. The solution should be administered in the intervals and never more frequently than three times in twenty-four hours. When the acute stage is over the treatment may be reduced in frequency and increased in volume. Now, the patient is able to tolerate local treatment, the need for large quantities of fluid, and the periods, intervals, and three phases. Treatment per se should be discontinued because of the subsequent properties. The patient's temperature should be tested by using very weak solutions of direct mixture. Start with a strength of 1 in 20,000 and increase gradually up to 1 in 10,000 (or even) which it is not necessary to go.

For treatment by operation and general management should change to maintain or even to the patient can tolerate them. Not only is this necessary to obtain exact information of the local condition, but without it the continuation of it is impossible to decide whether one may logically be permitted. Just as the first stage beyond the range of water allowed by a specialist. Local applications to tissues with or even through the operation will be almost sure of other lesions and at a higher level out of sight. If there is pain, they should be treated with 1 in 20 solution of sulphuric acid, which is a good remedy for the whole of the body. This treatment should be continued until the patient is able to tolerate the stage and a solution of silver nitrate 2 in 1000 (or 2 in 1000) should be used. After a more pronounced stage must be taken from the progress of the disease, and the patient and nurse as well as from the final discharge.

It is well to remember that of all the complications of gonorrhea, proctitis is the most liable to relapse. These cases requiring and partial treatment during the course of which relapse will occur more than once. It is seldom that complete resolution is established on less than eight weeks.

After the acute stage.—The usual treatment of these diseases is different in every form of disease elsewhere. As soon as an acute stage is diagnosed should be treated and treated. To treat for inflammation, applying bromine to the skin. The reason must be made to cure and it must be free. The usual treatment will prevent any change and

will render subsequent parking difficult and unnecessarily painful. A loose cushion is seldom essential. The T or X shaped cushion is the best. A loose cushion resting from the anus is liable to be closed prematurely by the action of the contraction and sphincter muscles. If limbs develop they must be dealt with in accordance with the general principles of support technique.

CONCLUSIONS

General lesions affecting the rectum and anal ring, or the barrier to a cause of leak by mechanism. The responsibility of the medical officer in such cases is indeed a grave one, for the sequelae or correction of the abnormal may rest almost entirely upon the medical evidence. The medical officer's evidence must be based upon careful and accurate observation of facts.

The laboratory has issued a confidential memorandum which should be studied by all medical officers. It now will be found a very excellent summary of the main points, and a detailed description of the examinations which is considered necessary in such cases. Let me say at once that none of these details should ever be omitted. The actual notes made at the time or a copy of these should be taken into court. In giving evidence the simplest scientific language should be used. Stick to a state ment of facts which are within your knowledge and never hesitate to admit that you do not know if that be actually the case. An expert has always the advantage over the medical officer, namely, Counsel on one side can address an expert witness as follows: 'Fundamental doctor, that you found no rectal displacement. What Nissen's diagnosis?' pursued the expert. Limited misquoting of the last trial. When Nissen was not the only Nissen who had obtained histopathological facts neither did he have which Nissen was the discoverer of the phenomenon.

Legal proof of the identity of the phenomena will not always be established by a Chinese specimen. Proof by analysis may be essential. This is an important point to which reference will be made later.

Typical, possible, & a diagnosis, or diagnosis. A medical man is frequently questioned as to the date between which infection could have taken place. Remember that if a question be put in this form—'Is it possible?' the answer of possibility are practically without limit, but those of probability are more restricted. The incubation period of typhus is 10 to 40 days. The possible incubation period is 0 to 100 days, the longer. The incubation period shown by the virus is 0 days to 100 days. It is called typhus the incubation period is 100 days.

It must be clearly understood that the incubation period (10 to 40 days) only applies to cases which have not had typhus before. This is a point of extreme importance. A second infection with typhus may be seen in which the incubation period and subsequent clinical development are entirely altered. This is analogous to shingles in which the incubation

SOME THINGS IN THE TREATMENT OF CHRONIC GONORRHOEA

BY DR. H. MITCHELL, M. D., LL. D.

Chronic gonorrhoea is (if it may be defined as it is usually characterized by) either a thin watery discharge or by more copious discharge (usually heavy and purulent), in which it is possible to demonstrate the presence of gonococci.

There is no doubt that this condition is one of the most difficult which the medical man is called upon to cure. It requires an almost unlimited amount of patience and often a rather extensive amount of treatment. The first attempt is to determine the *type* or *stage* of the condition. The following is a list of the commonest causes of chronic urethral discharge:

- (1) Chronically inflamed testis or glands in the scrotum or both.
- (2) prostatic and vesicalitis. (3) patches of inflammation (soft and hard), and stricture. (4) peri-urethral abscess. (5) cystitis. (6) infection of lymph glands and peri-urethral vessels.

The following is an outline of the procedure adopted in my Service during for a period of five years with marked success.

Take, for example, a man admitted as an out-patient to the clinic with a history of gonorrhoea a year or perhaps two years previously and with the complaint that he was suffering from a persistent itching test.

On the first day a specimen of urine was taken. This was usually either slightly turbid or more commonly clear with an earthy heavy deposit. It was subjected to a careful examination the centrifuge being employed to obtain a good film and the result being checked by Gram. Invariably few cells were present and, more often than otherwise, Gram negative diplococci were demonstrated. Unfortunately, there were frequently more colonies, and therefore inconclusive. (It may be here remarked that it would be of considerable value if all original cases of urethral discharge were labelled "gonorrhoea, present or not gonorrhoea found.") On the following day the patient was instructed to abstain from sexual intercourse, and an examination was conducted. The following procedure was pursued:—

(a) He was placed on the examination table and an urethral bougie was passed into the bladder. The size of the bougie was, of course, determined by measurement. It was found that the best was an average size of a bougie of the passage of a soft or hard catheter or of an urethral dilator being half an inch or more. After this was the patient was instructed to empty his bladder.

(b) The urethroscope was next passed in order to verify the diagnosis made by the passage of the urethral bougie and also to determine the presence or absence of chronically inflamed testis or glands.

(c) The third test was for peri-urethral abscess. This was determined

l'punging a roughly round finger and palpating the surface area of the condenser if not good proceeding to carry out the test in every case of glandular tumor the patient is discharged as cured. Perineal abscess is a very rare condition of calves.

(3) The corresponding test the perineum examination is to investigate the condition of the prostate gland and seminal vesicles. The bladder is palpated with short thickness of blood fluid (some infection are found a small to any others) and the gland larger passed into the rectum. The position of the three lobes of the prostate gland was first carefully noted. The examining finger was then passed above the base of the gland and the second lobe explored. These mucosal glands are usually palpable but it should be not be too early before a remarkable changes. Before the finger was withdrawn an examination of the prostate glands was usually made. In short the finger was hooked forward in the space of the prostate and the thumb placed on the outside of the edge of the prostate finger and thumb being then approximated past behind the bulk of the rectum. In the event of the presence of prostatic abscesses would manifest of some pain and tenderness but not always a swelling about the size of a pea could be felt. The differential diagnosis between carcinoma and prostatic abscess is made by the fact that in the former condition there is no tenderness when the region of the prostate glands is touched and the prostate does not enlarge.

(4) Lastly an examination was always made into the condition of the uterine tubes. Besides the normal condition it was occasionally found that when openings such as open medical canals were present. These were found to be generally above the uterus and either communicating with the uterus or lying near blood vessels. In addition care was always taken to investigate the state of Tyson's glands and their ducts which are situated outside side of the uterus.

Having decided by the above methods the nature of the chronic trouble the following treatments were adopted:—

EMPHYSEMA PNEUMONIS ETHERIS SULFURIS—This condition was usually treated by surgery which was performed by the passage of a thin tube up the nostril and was preferred to all others, being easily passed and if necessary could remove practically no pain. In the event of failure by this method it was necessary to make more radical. In both cases the surgery was followed by other several operations the solution used being usually a mixture of mercury in a strength of 1 to 1000.

During this treatment it was found that with time and patience a cure in this was usually achieved.

UTERINE TUBES AND VAGINA AND RECTAL ABSCESS—These conditions were treated on exactly the same lines, the treatment however being much more prolonged. The impossible structure is not included in these remarks.

PROSTATITIS AND PERITONITIS—These conditions were found to be far

and, with the graduated clasp as shown, with the following: Is both arms drawn across front to the only one, from treatment of my child. (1) Massage. Prosthetic massage can be secured not otherwise by the finger alone. Instruments devised for the purpose are worse than useless and, indeed, harmful. The greatest requisite here and elsewhere, for long periods too much pressure is used when all that is required is a gentle sweeping of the finger over the surface of the prostate from the nape to the urethra, any bony spots encountered being lightly passed. A course of prosthetic massage should consist of no more than eight sittings and should never be commenced before the end of the work in the treatment of a gonorrheal infection. It begins earlier or is very badly or not at all equibolized. Each massage was abetted by other manual treatment. Gonorrheal abscesses in men happily a comparatively rare condition in the Royal Navy, but this case of it was treated at my clinic in 1920 and was completely cured by two courses of prosthetic massage as described above.

PROSTATEAL ABSCESS. This condition was treated either by incision, the abscess opened instead, or by aspiration and injection with diluted solutions of iodine. It was always the practice to follow this treatment by a course of regular massage. Hoffman's solution being used for the purpose.

LEUCORRHOEA.—This was found to necessitate not so well associated to it a course of hot air baths. It was found, as the few cases dealt with in the above, that the abscess most commonly burst through the gland duct into the urethra. Should the abscess pass into the prostatic it would be opened in its early stages repeated and repeated. In all cases of abscess of the prostate gland the urethra must be subsequently examined for stricture.

PROSTATEAL CALCULI AND INFLAMMATION OF PROSTATE.—The treatment of these conditions requires no special description. These possible patients were always noted since they are a not uncommon cause of prostatic abscess and stricture.

In conclusion it may be said that if all cases of chronic gonorrhea are dealt with on the above lines there will not only be prevention, but the failure, in effecting an abatement.

PROPHYLAXIS AND TREATMENT OF GONORRHOEA

By JAMES CRAWFORD, M.D., F.R.C.S., F.R.C.P.

In dealing with the prophylaxis of gonorrhoea in the Royal Marine the following points have to be taken into consideration:—

(1) *Prevention*.—This, all will agree, is of great value in dealing with the subject. Lessons given by the ships' companies have been to little or no effect and prevention of venereal diseases have undoubtedly proved of service. Special stress apart from morning should be laid on the effect of venereal diseases on a man's future health and that of his wife and offspring. It should be pointed out that alcohol, drugs, &c. have the

effect, a prophylactic procedure, is concerned, with the administration of several, continuing, short courses and increasing the amount with each and every.

There is always a danger that both the dose and the frequency will be decided on the basis of some preliminary survey of comparative advantage (which might not be true) shown as by the foregoing and others not so formal cases. This danger has been pointed out by an instance in connection with the treatment of some cases of gonorrhea or syphilis, in which the patient, because of the smallness of the dose, has not been cured.

On the other hand, the danger is also shown by those who use the little doses of iodine or bismuth, the dose of phylic acid is, first, small, then, it is increased, and, second, continuing until, in fact, the danger of the disease is not cured.

It is true that the treatment of gonorrhea is a matter of prophylaxis, and the treatment of syphilis is a matter of prophylaxis. Unfortunately, the treatment of gonorrhea is a matter of prophylaxis. Unfortunately, the treatment of syphilis is a matter of prophylaxis.

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Summary

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the subject is, with a great difference in their treatment, of the two most important in the effective treatment of syphilis; the general conclusion is thus suggested that the reputation of salicylates produces a "cure" disease, which on large experience is convincing evidence of the course of gonococcal infection.

It must not be supposed from the foregoing conclusions that specific treatment in the form of vaccines is not beneficial in the treatment of acute gonorrhea and its complications. Statistics recently published have proved that not only is the duration of the disease considerably shortened but the risk of complications is very much lessened by the use of vaccines. The vaccine universally used now is a desiccated one. Local gonorrheas influence the best therapeutic results are obtained when the disease is attacked through the bloodstream. If the resistance of the patient can be increased the infection can be more easily overcome. In this respect the gonorrheal infection differs in no way from other pyogenic infections. Gonorrhea as a specific disease must be considered more as a syndrome rather than a local infection, so constant which the natural curative processes must be stimulated. Showing the importance of specific and non-specific therapy.

I am indebted to the Editors, *Otago Medical Journal*, for permission to republish this article and to Dr. J. McKenna, of Otago, for his kind assistance in the interpretation of these results.

THE PREVENTION OF VENEREAL DISEASE IN THE ROYAL NAVY

By ROBERT L. GORDON, F.R.S., M.D., F.R.C.P., F.R.S., F.R.C.P.

As the following table shows, the incidence of all venereal diseases during the War has markedly decreased during recent years. The figures as regards gonorrhea in 1920 are not really comparable with those of later date, for they include syphilis as well as acute infections. The marked decrease in pharyngitis may be due to more accurate diagnosis.

TABLE NO. 1, 1920-21, Venereal Diseases in the Royal Navy.

Year.	1920-21.	1921-22.	1922-23.	1923-24.	1924-25.
Gonorr.	45,000	40,000	35,000	30,000	25,000
Syph.	10,000	10,000	10,000	10,000	10,000
Pharyng.	10,000	10,000	10,000	10,000	10,000
Chanc.	10,000	10,000	10,000	10,000	10,000
Other	10,000	10,000	10,000	10,000	10,000

Unfortunately statistics during the war and for the two post-war years are not available. It is well known that for various reasons during this period the incidence of venereal disease increased enormously throughout the country, but dropped again immediately social conditions became stabilized. The post-war decrease in the Service is due to a combination of several causes which I shall endeavour to discuss.

(1) The lecture was given by the official and some self-respecting individuals. A large number of the younger commissioned men still regard themselves as children, but the majority have the sense to adopt prophylaxis.

(2) Men are now coming of an earlier age, owing to better pay and the reduction of marriage allowances.

(3) Much has already been mentioned about the previous lecture. As an indication of temperance in the Navy, 25.6 per cent. of ratings are of our Naval Hospitals did not drink more than seven in 1916. This of course does not mean that all these were spiritual abstinents. Many of them drank in moderation on shore, but a drunken sailor is now an uncommon sight in any of our home ports.

(4) When abroad, men are greeted more than before and consequently do not have the temptation to go on the spree as they did when there was a war.

(5) In the home ports, and in every place abroad, there are comfortable hotels and cafés where men can obtain appetizing well-cooked food and comfortable beds, all at reasonable prices. Also late hours are usually run to obviate the necessity of ratings having to sleep where.

(6) Ship life is made more comfortable and accommodation on board the larger ships is better. Games, shows and sports are given at frequent intervals so that men do not go ashore in night or much out of pace to relax.

(7) Health lectures. These are most valuable if the lecturer adapts his lectures to his audience. A different type of lecture is required for the young untrained and for the older trained men. It should be impressed on the older men that they are required to attend so that they can pass on the information received to the younger and less responsible members of the ship's company.

(8) The restriction of admission to the shore and abroad has proved most valuable. Medical officers vary in their ideas as to the best course for prophylactic treatment, but I think all agree upon certain principles.

(9) Men should be encouraged to make up for treatment as soon as possible after exposure, even the gonococcus penetrates into the deeper parts of the urethra in a very short space of time. Kenneth Walker has recently reported some experimental work which shows that *Shigella* prodigiosa when injected into the human urethra can be demonstrated in the submucous lymphatics within an hour. He noted also that gonococci find their way into the lymphatics with equal facility.

(10) Prophylactic treatment should be supervised by trained men. One can hardly expect some untrained person to properly play gonococci treatment, however carefully these instructions are written. There is also reason to believe that men who are contracting a chlamydia lesion

ghost occasionally and non-experimental children permit for purposes of self-treatment, and may thus propagate disease by means of infected needles.

(d) There should be a separate alienation room for petty officers.

(e) Most medical officers are of the opinion that the present outfit of calico dress is unsatisfactory as a prophylaxis against gonorrhea, though it should be retained for external application. The introduction of a silver suit, which penetrates between the needles and the skin, seems to be indicated. In 1907 4,000 outfits of calico gilly put up as specially hand collected tubes to prevent infection, were sent to the Mediterranean Fleet for use during the summer cruise. Good results were kept and a comparison was made with an equal number of men who used the ordinary calico dress outfit. The Fleet medical corps where venereal disease was known to be very prevalent. Of the men who used the calico gilly outfit, 57 per cent contracted gonorrhea, and of those using calico dress outfit 5.4 per cent. It would be interesting to repeat this experiment on a larger scale and test the results closely with the former experience.

The number of cases of venereal disease in the German navy estimated above. In 1905 the percentage of cases contracted on foreign stations was approximately: Deutschland, 70.5 per cent; S. M. S., 7.3 per cent; gunboats, 45.5 per cent.

This number is certainly underestimated, as many cases in the Atlantic Fleet must have been contracted during the spring cruise in western waters. Incidentally it is interesting to note the high percentage of disease contracted on foreign service. By far the greater number of these cases were contracted in non-tropical ports. In the Mediterranean and, presumably, in other foreign stations, intervention has been collected as to the incidence of venereal disease in places usually visited by the Fleet and as to best methods of control. This information as far as possible, is kept up to date and promulgated to medical officers in ships as required. I think this is proving extremely helpful, and is quite a valuable means of diminishing the incidence of disease.

Each foreign country has its own method of dealing with the venereal problem. Most European nations have licensed houses, with periodical inspection of women. Some nations consider it a serious punishable offence if an individual either has knowingly spread disease. Some countries have instituted compulsory disinfecting and treatment and such time as a case is detected, or in any case, until a person is considered non-infective. Unfortunately these various measures have not proved as satisfactory as it was hoped they would be. It has been generally found that stringent legislation leads to concealment of disease. In the British Isles legislation as to both is interfered with the liberty of the subject. There is one one problem there is a great difference of opinion as to the value of legal steps measures. At a recent meeting of the Society of Medical Officers

of Huddersfield because I spent some 15 months last year in which day after day I was surrounded by cases, some admitted and some others not. You know nothing of medicine there was no concern of operations or these matters, but we were recording points amongst. For operations, I am convinced, to have that the incidence of venereal disease is more justifiable if the country has recently started to increase after a steady drop for many years.

The subsequent history of 8,600 persons of both sexes suffering from venereal diseases was traced. Of these only 38.8 per cent were discharged after completion of treatment and observation 52.2 per cent brought 1 half course of treatment but ceased attendance before the end is in fact, when as many as 7.9 per cent ceased attendance before completing the course of treatment—in other words, in a definitely defective condition. In this sense of course it was found that in both syphilis and gonorrhoea females presented with treatment much more conscientiously than males. Considering the figures for gonorrhoea alone on which the difference is more marked, 64.8 per cent of females completed their full course of treatment and tests for cure—in other words, were without any side trouble compared with 42.6 per cent of men. It thus appears that the male gonorrhoea carrier is a greater menace to the community than the female.

I am discussing the problem of venereal disease in civil life because in any anti-venereal campaign there must be co-operation between the Service and the civilian authorities. As the civilian rate increases in December, so there will be a corresponding rise or fall in naval figures. Naval medical officers can help the civilian cause by diagnosing their cases early, treating them efficiently and relapsing their patients to a recognized test for cure. It is a comparatively simple matter to render the syphilitic patient non-infective, but relapses of gonorrhoea are only too common even amongst the patients of the most experienced. Some time ago I visited a London clinic, and was told by the director that while he made no serological stains so as to swing gonorrhoea quickly, he did serologically state that if his patients relapsed to the serological tests imposed that were relapsed. The next day I went over an adjacent clinic supervised by a friend of mine. He corroborated the statement that he alone was full of relapses from the clinic I had visited the previous day.

I do not think there is much concealment of disease in the Navy. A frequent case is soon detected by a nurse, doctor, or public opinion on the lines that compels him to go to the sick bay.

In the French Isles one of a woman is known to be infected and spreading disease, the anti-suffragette can do very little. The police very apprehend her for violating or obscenity contact but even then the matter is hard to submit to treatment. If compulsory treatment was insisted and a failure occurred, such as a death from an untreated preparation, public opinion would be up in arms. Some local authorities try to get to touch

is an acute variety of the organism commonly called the virulent diphtheria bacillus or K.L.D. Although virulent bacilli can give rise to virulent yet according to local conditions the disease change into cases, and for practical purposes we can take that disease as true and therefore virulent diphtheria bacilli cannot cause symptoms.

Many people are immune to diphtheria because they possess virulent diphtheria antibodies in their blood; these people are distinguished from those who have no or very little antibodies in their blood by means of the so-called reaction which I may remind you consists of exposing a small dose of diphtheria toxin into the skin. If a red patch subsequently develops at the site of the exposure the test is positive which means the subject may be susceptible to diphtheria but not necessarily so, because some, which possess antibodies are relatively immune. On the other hand if no reaction appears the subject has enough diphtheria antibodies in his blood to neutralize the injected toxin. So it is a fairly negative reaction and completely immune to typical membranous diphtheria.

It is convenient to divide the sore throats which are caused by the diphtheria bacillus into three groups:—

1. These are the typical diphtheritic sore throats which show a characteristic membranous exudation the appearance of which is pathognomonic of diphtheria. The only investigation necessary for diagnosis is a smudge. In this case the results of a throat smudge and blood test are almost invariably positive but in the majority even if negative do not affect the diagnosis as the throat test can be diagnosed with.

2. Of these is a large group of patients, the appearance of whose lesions would be called typical but in which either the throat or the general condition of the case does suggest diphtheria. Such patients are especially common in crowded institutions and the few experienced the physician the greater are the number of cases that he will place in this group. Such cases if in all at times be treated immediately as diphtheria without waiting for the result of a throat smudge. If in such a doubtful case the laboratory reports K.L.D. present, the diagnosis of diphtheria is established and bacillus shows a variety of the organism is subsequently found to be virulent. On the other hand should the report be negative, the diagnosis of diphtheria having more uncertainty because in the vast majority of almost diphtheria cases K.L.D. is easily demonstrated in the primary throat culture. When K.L.D. are reported present, but considered the patient they come from is probably not suffering from diphtheria. This however is not necessarily the rule, because virulent and virulent strains of K.L.D. are found in the same throat more frequently than has hitherto been realized and more than we give sufficient allowance in the appearance of virulent and virulent strains of K.L.D. in a mixed culture. Hence determines which variety the bacteriologist will select to test for homogeneity.

The third group of sore throats are those which, although they clinically

do not even suggest diphtheria, yet in cases K L B. The question arises are these K L B responsible for the throat lesions or merely harmless non-infectious colonizing flora whose condition is entirely due to some other process? In other words is the throat lesion an ordinary incident of untreated diphtheria or a carrier of diphtheria bacilli? Should the bacilli be treated according to the usually accepted belief they cannot cause a sore throat, and therefore such a case must be one of diphtheria, but if the K L B are found to be virulent we are not much further forward in diagnosis than we were before. However, under these circumstances a knowledge of the patient's clinical condition will solve the diagnosis. For practical purposes a clinical negative reaction excludes diphtheria; on the other hand, clinical positive reaction of various kinds are so rare that some authorities doubt their existence. Therefore, a virulent diphtheria bacillus, an exudation, with a sore throat and positive Schick test, implies a diagnosis of diphtheria. Diagnosis may be taken to the foregoing remarks on the ground that the consideration of a sore throat which is not diphtheria with a positive K L B laboratory report must be so common as not to be worth troubling about, but in several instances this is far from the truth as the following figures clearly show. 15 per cent of the sore throats over a thousand non-membranous sore throats gave K L B, while during the same period 7 per cent of some 4,000 apparently healthy boys were proved to be carriers of diphtheria bacilli. If we allow that carriers are as likely to suffer from non-diphtheritic throats as other boys, then 7 per cent of about half of the non-membranous sore throats which contained K L B were not true diphtheria cases but merely secondary infections in carriers.

In some instances the virulence tests and Schick reactions relating to doubtful diphtheria cases were known, and they confirmed the deduction that about half were real cases of diphtheria in partially immune "Schick positive" reaction, the remainder being secondary infections or benign negative carriers. This class of case which harbours K L B but has no other resemblance to diphtheria, though interesting epidemiologically is unimportant clinically. They seldom require treatment, and it is really only troubling Providence to seek their throats. The use of the throat swab as the diagnosis of diphtheria in the private sector, has limited. In typical cases it is unnecessary. In doubtful cases when combined with a virulence test and Schick reaction, a positive result is often difficult to interpret in such circumstances as discussed below.

The custom of waiting for the result of the bacteriologist's report before antibiotic treatment is of course unwise, assuming that the patient unobtrusively ill and there is the slightest suspicion that he may be suffering from diphtheria. Antitoxin can only prevent toxin doing damage; it cannot cure a poisoned patient or neutralize toxin, and therefore considerable harm may result during the twenty-four hours or more that must elapse before the result of a throat swab is known.

Again, although experienced workers rarely fail to find K L B in throat

with less frequent onset of diphtheria, yet within 10 years (and) the western states, even with much influx from the throats of "boarded" cases. For example, some years ago I was asked to see a man (and his wife and family) who had been sick for a week with a sore throat (this man had attended at home, not) had been trying but looking worse—K. L. B. The patient was not, at all, and typical diphtheritic manifestations had appeared all over his face, soft palate, and pharynx. I gave him 50,000 units of antitoxin (all of it intravenously) within half an hour of first seeing him. Subsequently I noticed various diphtheritic lesions here and there. The patient ultimately recovered, but not before he got prodigious of suppuration in throat and paranasal sinuses. Inquiries afforded evidence of "new men to town" (diphtheritically) when I was visited others of H. M. by children (two typical cases of diphtheria reported each while the day was with him, diphtheritic lesions). But once gave them each 25,000 units of antitoxin and then sent up their throat swabs to the local laboratory. The reports to both patients were negative. The men recovered and then as one died, at the same or no longer before some even. I began to question whether these diagnoses had a few weeks later (any similar cases found up and of which gave results in which number bacteria) yet was able to help help?

There is another point about the primary culture from diphtheria, even, and it is not so generally realized as it should be. A culture, which was, upon medium after twenty-four hours growth, can show K. L. B. as the predominant organism after another days incubation. Although the lag to growth is not common in primary cultures of diphtheria bacilli from cases it is frequent in throat cultures from carriers. Obviously I only estimate the experimental cultures, taken from healthy boys after forty-eight hours growth, but in reference to the question of lag a special series of 150 throat swabs were examined. At twenty-four hours (for example, produced twenty six strains of K. L. B. He examined at forty-eight hours some further positive cultures were found (i.e. the diarrhoeal swabs etc.) had increased from 74 to 94 per cent. For the purpose of works ordered by a medical man other than control of negative after twenty-four hours incubation must be examined at forty-eight hours. The K. L. B. found in carriers and corroborative must always be noted for evidence, otherwise many bacterial strains will be unnecessarily detected. The main of research in diphtheria bacilli were extensively at different times even in the same community. In 1924, a series of cultures of *Corynebacterium diphtheriae* from carriers were 45 per cent. positive. At the end of 1925 forty six consecutive isolated cultures of K. L. B. from throat swabs (with all in carriers) included only 12 that were negative, i.e. 2 per cent. were resistant in 1927, as contrast to 50 in 1924. I think that is the lowest proportion of resistant bacilli that I have ever seen in any consecutive series of K. L. B. cultures. But it means that if these boys had been segregated or isolated as diphtheria in the unquarantined report—K. L. B. present. But:

ten boys could have been a very marked outbreak, and even among the 1937 cases were from unknown acute throats, the sensitivity of diphtheria would have been fairly increased. All of which is a striking illustration of the sensitivity of the random test. Moreover, sensitivity was not so reported because on quite a few occasions of cases the random diphtheria bacillus after a variable period of contact with its host will change into, or be replaced by, the harmless variety. Should, however, the health test of a carrier be found positive a sensitive test may be omitted and the carrier released, because although carriers of virulent diphtheria bacilli with feedback positive reactions do exist yet they are so rare that for practical purposes they may be neglected on the grounds that since the feedback test is positive the bacillus, though not tested, cannot be dangerous or otherwise its host must have had symptoms.

However, in repeated examinations, even diphtheria has got a grip two carriers under hospital the attempt to eradicate infection by mass swabbing with a view to the isolation of carriers. The first is the unnecessary of the nature of the work which makes it impossible to see when any carrier is concerned in low mass infection. Some time ago I visited a school of thirteen carriers every day. The notes of one girl written to explain the difficulties caused by intermittency. A naval officer who had instructed a virulent B.L.B. carrier infection was visited on five consecutive mornings. On the first four visits results were positive and twenty-four negative. The positive and negative findings were mutually irregular. They might alter once for a few days then a run of half a dozen negative might be followed by a single positive result, or by a run of positives. It is amusing to note that if only the routine three negative weekly swabs which are the usual price of freedom, had been required of this officer he would have escaped. As it was, his upper lip was swabbed after which diphtheria continued to give daily results were negative and he was sent to ship. The source of B.L.B. from this case which continued without throughout the period of observation, also illustrates very well the phenomenon of lag, because in cases then half of the primary carriers B.L.B. were not evident till after four or five hours growth. McCartney and Harvey (1) have just recently published some observations on intermittency lag and loss of virulence in B.L.B. cultures from man and. My own work thoroughly confirms their results. The other reason why mass swabbing is so hopeless is that the vast majority of symptomatic infections with B.L.B. or excretionism such as diphtheria follow only last a short time. The cases and about spreads like an epidemic were over the school so that boys whose swabs negative today will in thirty or six months become carriers and test twice. For instance one sample of 120 boys produced fourteen carriers at their first swabbing, six weeks later the same boys produced twelve carriers but only one of these had been found on the first occasion. A fortnight later no carriers were found but three of these had been discovered at one or other of the former swabbings.

The results of our own work proved that, as far as the two different types had equivalent K.E.B. within a period of two months. If such a rate of infection was maintained 100 per cent. would be infected in Greenwicks (between K.E.B. within six months). As a matter of fact I believe a few days' complete isolation in cases selected first that others become infected was not sufficient during these three years at school. I should think however that during the last seven years at least 75 per cent. of the boys who passed through Greenwicks School must at some time or other have been infected with either virulent or avirulent diphtheria bacilli.

When all the failures and difficulties are taken into account the impossibility of trying to eradicate diphtheria bacilli from an environment such as Greenwicks Naval School by eradicating and isolating carriers has now appeared. I doubt if it could be done even if a bacteriological unit were temporarily assembled in each boy. The solution of diphtheria with me dwells that it was not worth while to segregate those carriers from I having conducted experimental investigations. Last term (January-April 1934) there two virulent cultures of K.E.B. were actually isolated from healthy boys. There of course, must have been many more virulent carriers which were not discovered. Therefore, although there were probably more than 100 distributions of virulent K.E.B. here in the school, certainly no doubtful case of diphtheria was seen, which is the smallest number recorded during any of the last twenty school terms.

Diphtheria carrier-banking became popular as a supposed preventive measure when it was realised that the carrier was not a pathological concern. It was presumed that a single case banking would reveal one or two pure distributions whose isolation would remove all the sources of the diphtheria infection. Even today few people realise that carriers in dense populations at a mass often the diphtheria patient or symptomatic subjects rather than the carrier, or symptomatic infection, that is the pathological concern.

During the last three years at Greenwicks School a single infection from the lowest carrier rates shows that there must have been some thirty carriers of infected bacilli in every classed case of diphtheria and more in this period over 100 symptomatic infections were marked as diphtheria there must have been about 4,000 virulent and unobserved infections with virulent K.E.B. during the same three years. Notice I mark virulent diphtheria bacilli: the virulent variety is not included in this number. Even if it were possible to detect all carriers directly they became infected, few infections would have the necessary accommodation or money to segregate and treat them.

The diphtheria threat such when used without discretion and a full knowledge of its inheritance has been in many ways a curse. It must have been the hidden cause of many deaths when isolation has been withheld from a serious case of diphtheria until the receipt of the laboratory report, or because the report was "negative K.E.B." On the other hand

the preliminary report of "E.L.B. positive" reflected a violence test, or a knowledge of the patient's "shock reaction," were have immediately issued a wrong diagnosis of diphtheria, as to many non-specific diseases, and thus labeled the contamination serious. Again but as there negative throat smears in a most unobtainable standard of freedom from infection, which was only given a sense of false security. I have tested many diphtheria carriers sent to the small harboring E.L.B. after returning from fever hospitals, where the custom of washing under coverings was practiced. And what has gone before everyone will see that this method, versus an infection on the fever hospital's technique. I doubt if thirty or forty "negative smears" is any certain evidence that the carrier is permanently free of E.L.B. In many circumstances washing and rubbing clothes as a preventive measure is often a mere waste of time which would be better employed in doing something useful. Incidentally, it is quite conceivable that the removal of the carriers from a crowded institution may ultimately do more harm than good, but that is much too long a story to go into now. I do not mean by this trade against indiscriminate washing that the bacteriologist examination of the throat has not got its mark in the control of diphtheria, but that the results of every throat smears must be correlated with all other available data, and especially with the environmental conditions.

Remember having often little hope of lowering the diphtheria mortality of crowded establishments, can we do anything by increasing the space between the inhabitants during their hours of sleep? This method as we all know was introduced by Gilester with surprising success in the control of epidemic meningitis. Although I flinch at between the rules of the adjacent beds was sufficient to prevent the spread of meningitis, certainly, acute infections among children, yet I flinch at the barrier to the spread of diphtheria among English boys of the 12 to 16 age group. But evidence (personal evidence) that "B" is necessary to prevent mass infections of diphtheria in children. Even if considerably less disease were found to follow for adults, young men, than "B" between beds is an unsatisfactory procedure in the Bureau and even should was a well opening be found possible in some time it could be found to limit, then, on establishments with probably, disastrous effects. In the Navy at sea, it is impossible to allow more than 22 in. between hammock, bunks which means that the sides of adjacent hammocks almost touch with other. I doubt even if it were possible whether it would be advisable to give too much space in training establishments because it is from the raw recruit is transferred into a crowded man by contact with, and adaptation to, the more rigorous he mean to his raw recruitment. If, therefore the boys under training were protected from all contact with infection it would only mean that when they went to sea they would contract more easily to specific disease and in this way the mortality would be transferred from the training establishment to engaging ships where infection disease is still harder to treat and control. I offer prompt solutions the

method of exposing a community of the people in the training institute to a disease, the 'black measles' virus the white measles, measles, mumps, diphtheria, scarlet fever, and other communicable diseases, is not without value in promoting the study of controlling diphtheria, which means, from a social point of view, the study of those which have just been mentioned, and epidemic disease in general. One can get one's medicine as well as that for the soul and this is only a natural process. Perhaps measles, mumps, scarlet fever, and other diseases would better expose the truth. Under natural circumstances measles epidemics where diphtheria costs the whole community, it is a very dangerous mistake. At least not a clearly defined one because during one period of about four months over a third of the whole people becomes because measles before exposure and one without sharing, symptoms of diphtheria. Active immunization against diphtheria has now gone well beyond the experimental stage and has proved itself to be a certain method of reducing symptomatic diphtheria when employed on a large enough scale. One example will suffice to show what can be done. Some [1] reports that in the American territory of the Alaska, diphtheria was epidemic and in 1924 the mortality was fifty eight deaths per 100,000 of the population. In 1925 anti-diphtheria inoculation was started. By 1926 85 per cent of the children had been vaccinated and during February 1926 went up to the date of the publication of this report there has not been a death from diphtheria in the Alaska Bay.

The possession of a negative 'black measles' is probably capable of getting typical diphtheria; and even if, in some of cases, the reaction helps to position the subject is vaccinated and receive vaccine to ordinary exposure to infection. Clearly a [1] work and we get an perfectly clear picture of my own opinion that active black measles vaccine gives a high resistance to symptomatic diphtheria.

Active immunization against diphtheria produces a solid and lasting immunity, and therefore cannot be compared with the typical vaccination, which is only followed by a temporary and uncertain one of the resistance to infection.

For this reason there seems to be a demonstration on the part of certain English authorities to encourage active immunization for diphtheria. I have known of this atmosphere of doubt myself when Surgeon Captain May the school medical officer proposed we should vaccinate the Greenwich boys. Therefore, though the last result is progress a few weeks ago in a experiment with diphtheria prophylaxis may encourage others. Some naturally naturally, and he thought that is so. British parents and guardians would object to their children being vaccinated. At Greenwich the parents and guardians were so informed at a time when, not result of the diphtheria disease, the black test and diphtheria prophylaxis was the subject of much adverse criticism in the popular press. In May over one 1,000 letters had only received seven replies, which is a good demonstration

that although a very accurate test makes it appear that there is great opposition to some public health measures, yet the average man in the street generally has enough common sense to leave these matters to the health authorities. However, those diseases which have commonly been reported from abroad such as the large epidemics in Australia, where eleven children died after the administration of toxic antitoxin mixtures, are absolutely disappearing. The state of the diseases even almost undoubtedly due to the dissemination of toxin in unsanitary closed quarters, or to an epidemic of diphtheria toxin due to some toxin in the preparation of the prophylactic. Also, since the older immunizing preparations contain horse serum, the danger of anaphylaxis has been raised, on the count of having an unknown antitoxin to an untested individual. Such diseases and human anaphylaxis should, of course, can be rendered impossible by the use of a prophylactic containing neither toxin nor horse serum. "At Greenock we used a prophylactic which contained formal only, and it certainly just as good as if not a better protection than the older toxin-containing mixtures."

The reactions following the injection of the prophylactic are negligible. In some twelve instances out of over 400 anaphylaxis there was a local reaction about the area of half a centimetre, consisting of redness and slight oedema, and only these boys had a increased temperature of over 100° F. No boys complained voluntarily of itching. None of the few local reactions seen at Greenock were worse than normally expects to get after an injection of T.A.B. vaccine. These remarks apply to the age group 12 to 15; reactions might be more frequent and severe among adult males or soldiers.

The time which has to be expended in the actual technique of active immunization is not excessive. For instance, a community of 1,000 individuals, 40% of which had positive Schick reactions, would require about 4,000 injections. This number includes all the Schick tests and their controls and the vaccine and antiserum injections which may be required by voluntary Schick positive reactors. With a good organization, a team of two medical officers and three assistants, once they had mastered the first should be able to get through 150 individuals, or immunizing injections per hour, that is thirty hours work in all. This estimate is based on the time spent by Surgeon General Macfarlane Parker and myself in giving the actual injections that would be required in voluntary school children only.

Finally, active immunization is a sound investment. The cost of both toxoid and diphtheria prophylactics material of bought commercially for a sample of 1,000 men with 50 per cent. positive reactors, would be about £50. Parker (4) estimates that a case of diphtheria costs about £20. Therefore, if the mortality from diphtheria in an institution is over 5 per

Report of the Committee on the active toxin cases in hand and show that the cases are more from an infected source of people's bodies. This would depend on, I feel, all what is likely to supply such patients will be of the nature of an outbreak. —A. J. P.

1:50 per acre (by 1940-45) in growing, it will be used within a year. This valuation only applies to the houses where no other method exists, with the accompanying loss in money.

At Glenside School during the last seven years some 550 cases have been recorded as diphtheria and sent to four hospitals. If it had been possible (which it was not) to have immunized the school before 1930, on a basis based on the average number of school positive reactors which are found among the new entrant students that it would have cost about 1.50 a year to immunize them, and according to I fully believe in world, that diphtheria would have been completely eradicated by this procedure, about 115,000 would have been saved the school at a cost of \$150. I need say nothing about the saving of health and life in education diphtheria cases, which it is especially important to try and prevent in such children as Glenside Royal Naval School, since it occurs at a time when we really affect the boys' future careers.

It is of course, too soon to expect any results from the immunization at Glenside, because the only serious disadvantage of anti-diphtheria vaccination is that while school negative reactors generally follow them to the middle to develop. However, the extent which the school reaction becomes negative in any individual depends on how far the natural process of auto-immunity has proceeded. In Glenside owing to the large amount of diphtheria which had been present before immunization had begun, it was anticipated that there would be a greater reaction to active immunization than there was common amongst the general population. This anticipation has proved, in fact, to be correct as about 75 per cent of the positive school reaction showed to negative within six weeks of their first dose of prophylaxis raised.

Though I think the chance of diphtheria this last time was due to the return to other areas, it is quite conceivable that the immunization had some beneficial influence. Below I can explain why this may have been so, it is essential to introduce the concept of herd immunity. Herd immunity is a phrase used to express the measure of a community, or herd, as a whole in the spread of infection as distinct from the separate resistance of the individual who make up the herd. The amount of disease in a community is a function of the herd immunity, the type of infecting parasite and the character of the environment.

Although it may take months for a school positive reaction to become negative, yet positive reactors may acquire a high resistance to diphtheria long before the amount of diphtheria sets down on their blood is sufficient to inhibit completely a positive school reaction. Therefore, at Glenside the herd immunity to diphtheria started to rise gradually as soon as the first batch of positive school reaction received their first prophylactic vaccination.

The new boys at the school who account for a large proportion of the diphtheria cases at Glenside, are always segregated for three or four

weeks before coming with the old boys. Had been the new boys entered the first day during the period of segregation. Their lack of immunity to diphtheria was therefore rising at the time they came in contact with the many resident carriers already resident in the school. The escape by old boys also got their first inoculation early in the term. An inoculated before the case of asymptomatic infection did come early in the term, which suggests that before inoculation was announced there was some tendency, if only a slight one, to the spread of asymptomatic diphtheria. Therefore it is not unreasonable that any factors favorable to the spread of diphtheria were outweighed by the strong tide of herd immunity.

A rough measure of the degree of herd immunity to diphtheria is the rate of the spread to produce isolated cases in a population. At the Royal Naval School during the term in question the index of herd immunity increased from 7 to 10. It is interesting to note that although the conditions in the school were unfavorable for the spread of asymptomatic infection with K.L.D., yet the environment was strategically suitable for the dissemination of asymptomatic infection with both the virulent and avirulent variety of the diphtheria bacillus between February and April, 1939, K.L.D. were found in the throat cultures from over 500 apparently healthy boys. However a year or two more weeks pass before it is certain that active immunization will completely eliminate a diphtheria incubating at 3 per cent per annum. Although prophylaxis is always indicated in such the narrow way of raising a population, yet I feel confident that within six months diphtheria will have practically vanished from the Royal Naval School.¹ Of course a sporadic case or two may at times be seen among the new arrivals before they become immune or in that exceptional type of "school positive carrier" who seems to reach all attempts to make his bacteria negative.

Finally, I would like to mention a point which though based largely on theory may be of great practical importance. I think diphtheria incubating could be cultured to a negligible figure, and ultimately eliminated altogether from a community, by immunizing the new comers only, and segregating them from the other inhabitants for a few weeks afterwards. The incidence of all infections diseases falls most heavily on the recruits in a community who in their turn act as sources of asymptomatic infection among more active inhabitants. The incubating of prophylaxis cases before in the new additions only would need a large social outlay in time and expenditure and might ultimately protect the whole community.

I wish express my gratitude to Dr. E. A. O'Hara of the Williams Research Laboratories, for supplying the prophylaxis preparations used at Greenwich, and also for much valuable advice, and thank my colleagues

¹ Epidemic statistics for a new population a case of diphtheria has been notified from the Royal Hospital School.

Commander Captain F. May and Surgeon-Commander H. B. Patten, without delay and haste, on operating in Washington at Greenwald could at once have been.

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THE USE OF AN HALLSBERG TABLE IN THE OPERATIVE TREATMENT OF THE BENT OF THE LEG

By Surgeon-Commander F. WINNIE, OF THE ARMY.

This paper being merely a description of the freest table in use at the H. H. Hospital, Boston, during the past year it is not proposed to discuss at length the pros and cons of the operative treatment of fracture. It may be said, however, that the following points are amongst those which have led to operations in preference to conservative measures, viz. a growing number of cases, observing that increasing confidence in mechanical means by an important factor.



(1) The frequency with which the following lesions of bone, treated by conservative means, either unaltered or with troublesome diseases accompanying them, often apparently require an increasing vigilance and inspection, especially in the case of the leg, may not be available.

(2) The number of cases of fracture and dislocation made possible by internal splinting.

(3) The frequency with which an operation is required upon a fractured bone, which perhaps unoperated would delay and spoil some of not unusual.

(5) The fact that after exposure and exposure of the film, made it may be possible to fit them on an automatic machine, considering the introduction of an interval space unnecessary, and given, on the of perfect result, and after alterations by other methods.

Nevertheless, in most cases operators, with satisfaction after the trial of other methods, in which it is placed from the fact that without exposure and exposure of the film a good result cannot be expected. Even with the most elaborate mechanical operators are by (1) which cannot be expected.

For the reduction and control of a fraction, during operations provided extension is necessary, and while one is left in constant a mechanical apparatus for manual work, the constant provided by this apparatus is in each member, more cases, and ensuring that the film is covered that it has greatly simplified all the cases in which it is required.

The table is modified from Hawley's pattern in the design of the film of Southern, and the more features are seen in the distance.



Lewy's clamp

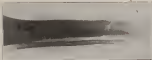
It is light and portable, weighing 50 lb when taken in its folded case, which measures 22 in by 14 in by 7 in.

The movements which it provides are: Extension of the lower limb, movements about the hip joint, abduction to any degree, hyperextension, flexion, extension and external rotation. It uses all these parts, movement and extension of the foot. Extension is supplied by a screw and telescope, two camera extensions being provided by a pinned staff, which is well padded on top and can be moved when the patient is moved to or from the table. The last one is due to the extending three-point (which hold them in right angle) disengaged by knicker spurs. The arrangement is adjusted and no clamping of the film or other things, but have a used in these cases in cases in which prolonged or severe extension was necessary. After the usual three days preparation of the film the patient is transferred, and then moved on to the extension table in the same room, both feet being supported by crutches, and the screw adjusted with the maximum extension available, a horizontal being always used. When moved into the theater, the usual support stand is used and the operation was being.









reclined by steady traction on the normal leg, the traction causes recovery nearly immediate, but well away from the wound. The fracture is repaired by a curved incision, curved straight down to the bone, periosteum and soft tissue being swept back from the bone ends together. The deformity is corrected, strips of tape closed up, and when the fracture is freely united a splint is made by an assistant who turns the patient on his side, holding both legs. If the bones are freely united no more force than the soft tissues can stand is necessary, and no damage by over-extension of the soft tissues has occurred in any case. Both legs must be controlled in the patient's hands to rotate round the personal staff, and counter extension is applied. As the fragments extend, leverage and adjustment are carried out until when the original position is recovered, or the best possible position for placing or getting in a splint. Sometimes outward splints have to be taken off, or the bones stopped into good alignment. If good and true position be secured, a slight increase of length is well worth while. If the motion is moderate, extension is clearly used all the time in economy; or make a cast the wound is closed up closed without the introduction of any plate or graft. If the position remains precarious, the bones are held in place by a Lister's clamp while a plate or graft or bone peg is fixed. This method has long been found reliable.

The wound is in all cases closed by deep suture, sutures through all tissues including the periosteum (which is not separately sutured) and intermuscular then closure of skin and gap. The deep sutures are taken out on the fourth day, and the apparatus removed about the eighth. If a full union has followed from the closure of separate ends of the periosteum and the wound can be closed very quickly in this way. The temperature is not removed until all the drainage has been applied—the limb is then put up in back and into splint with fast pads and the patient removed to the ward.

The plate is removed early, usually in about a month or six weeks, whether there is evidence of resistance or not, if adequate union is shown by X-ray and the patient seems secure. When the wound has healed, the leg is put up in a plaster cast and the patient allowed upon crutches. The plaster is immediately split to allow of drainage, and there after held in place by strips and bandages. The incisions and sutures are covered in getting up, together with drainage, stimulate repair and improve the nutrition of the limb, while the mental effect on the cast has ceased.

Harvey may be noted in parentheses that in place of the usual band plaster of Paris bandages of book number one prepared for each case, or prepared with plaster of Paris bought separately. Such bandages are infinitely superior: setting quickly and as strong as the ready-made wound cast as well as being much cheaper. No attempt at weight bearing is allowed until clinical and radiographic evidence of true union is satisfactory. It is not expected that normal walking can be achieved much earlier six months from the date of fracture. Sometimes more weeks



FIG. 17



generally more than that is suggested by any evidence, but this has been taken as the basis of discussion.

Case 3—Hemorrhage

The following is a brief history of which I am indebted to William C. Macomber, M.D., of New York, N.Y., who has kindly referred the episode to the N. F. O. Division.

In each case there were two drivers. (1) The original fracture. (2) The result of operation at 14 hours. (3) The result of operation at 24 hours.

The results are shown that a record of the plate before, one was made and the series before and after. The results are fairly good. There was a broken-down in this case. The closed result in all has been an excellent one as was also in other cases to which the extension table was applied.

It is clearly controlled by the great value of the extension table in these patients and the application of the plate as well when such is necessary, much more than it has ever been found to be when extension was otherwise provided.

Case 4.—This had been a very acute compound fracture admitted after many weeks treatment in a well hospital operation though urgently demanded to correct gross deformity with extreme marked rotation of the lower fragment and this had been postponed on account of failed repair. Operation was performed with independence in the end but the wound healed very well and the result was gratifying. One of the comminuted fragments was used as an intraorbital plug to avoid the introduction of a plate, it can be hardly seen in the diagram. The slight ridge deformity caused an almost constant at all.

Case 5.—Operation was performed after the failure of fracture methods to reduce the overgrowth of the fragments. On the extension table it was found possible to secure fixation in accurate position and no external splinting was needed to maintain position.

Case 6.—Comminution in this case made reduction impossible to maintain and very after operation the position normal position. It occurred again, however and when the plate was removed the wedge-shaped comminuted fragment which was quite separate, and was left in situ with some swelling when the plate was applied, was found to have united fairly well and it contributed to the mechanical strength of the result.

Case 7.—Comminution here upon made reduction by closed methods difficult and operation was undertaken at the patient's request the result being very satisfactory.

Case 8.—Union was delayed here and approximation prevented by interrupted tissue which was found at operation, and though through the fracture was a good result would have been impossible without its removal.

SOME COMMON PROBLEMS IN NAVAL HYGIENE¹

By HAROLD LAMONT, J. M. B. & M. B. B. B. B.

In this paper I shall try to discuss everyday problems with which I as a naval health officer have been confronted in different parts of the world during the last three and a half years. The problem of naval hygiene centers itself upon how to keep men fit living as they do in a steel ship subjected to weather and often considerable variations of climate conditions. The men have to live and work in a very confined space and altogether the conditions are hard to tolerate without vigilance and co-operation between various departments to prevent an undue amount of sickness and damage. Also a ship is a fighting machine and although the authorities are aware of the importance of keeping men fit, yet an efficient modern hygiene has to give place to fighting efficiency.

A considerable amount of interest has accumulated about ventilation of workshops, and many committees have dealt with the subject. However perfect a system of artificial ventilation may be it cannot compete with a natural supply of air. There may be adequate means to regulate the temperature, to render the air bacteria free and to ensure an abundant supply but at the same time we always appear dissatisfied and sorry. Unfortunately in a ship exhaust ventilation can only be worked in a very limited extent. It has been found impossible to exhaust below and over decks, as the exhausted air would usually be replaced by foul air from the deeper parts of the ship. Exhaust ventilation is only applicable to spaces such as engine and boiler rooms where very high temperatures obtain, or to compartments such as wash places, lavatories, cooking galleries and bedrooms having their own purified atmosphere and where what has to be disposed of need not be so minute as to vitiate the surrounding air.

Constructors say that the original plans of a ship always provide a perfectly adequate system of ventilation. In course of construction however, structural alterations have to be made, which often leave the ventilation system unsatisfactory.

The best position for the air outlet appears to be a machine on which there is considerable development of opinion. The ideal system is water heat and a cool head with a dry temperature of about 60° F., and a head temperature a few degrees lower; the air should be changed sufficiently often to keep it pure but under draughts must be avoided.

Now, it appears to me impossible to evolve a system of ventilation which will be equally satisfactory in the North Sea, in winter, and in the tropics.

¹ Paper read at the Royal Society of Medicine (War Section), December 10, 1919. Reprinted by kind permission from the Proceedings of the Royal Society of Medicine, vol. xii, No. 1, January, 1920.

(1914) ships are liable to move to any part of the world. It is comparatively easy to warm a ship but difficult to keep it cool. I take it that warm air should be delivered low down in a compartment and as most of the ships destroyers which I have been over the air whels are about 4 feet from the deck, but often trilled away at a distance of the compartment. Apart from the fact that air delivered at such low level gets contaminated by dirt from the deck, this low delivery apparently proves satisfactory in cold climates but is most unsuitable for hot weather. In the majority of ships the whels are rather above head level probably the best level for delivery of cold air, but unsuitable if a warm air supply is desired.

The pocket burner system by which the whels work on a ball-and-socket joint which can be adjusted to deflect the air to any required angle as I am told, highly successful. I recently went on board one of our newest destroyers fitted with this system which had just returned from a cruise in a hot climate and the officers and crew were very pleased with the general air supply.

The ventilation committee in ships perform their duties with varying degrees of energy. It is surprising how often old standing defects in the ventilating system are detected. Tracks get blocked, supply doors are found using as exhausts and not vents, and constant vigilance is needed. Unfortunately it often happens that the individuals who suffer from unimagined defects are those who work in inaccessible spaces and who are too difficult to complain. Pains have to be taken for a certain period each day and in a well-run system of ventilation it should be possible to run artificial fans at a time which gives the maximum discomfort to the crew. For instance, fans supplying cabins and mess decks should be started during the forenoon, when the occupants of these spaces are mostly working elsewhere, while fans supplying officers can be started at night. In some ships it is apparent still to be the custom to run all fans at the same time thereby causing unnecessary inconvenience to a large proportion of the ship's company.

During a recent tropical cruise in which two battleships were employed, the ventilation system was very severely injured and. Work again was quickly detected directly the ships got into really hot weather. Defects which were not apparent in a cool climate. In several mess exhausts were found to be in operation previously to notice so that a reverse circle was established and hot air was sucked down again to living spaces. Many of these defects were easily remedied by the ship's staff.

Various recommendations were made to render these types of ships more habitable in hot climates. The desirability of abolishing as far as possible the multiplicity of small offices was emphasized. Each department naturally needs its own office for records of work and grocery but this renders the ventilation much more difficult, as it leads to pocketing of air.

A much more liberal supply of table fans was recommended. The

members allowed for officers' quarters is usually fairly adequate but the supply allotted to the ship's company should be largely increased. A great number of non-thermogenic coverings were taken and the necessities was revealed at that table, but on suitable provision on the foreheads were preferable to cover all hair. This is not the general opinion but it was our experience.

Men, continuously vaccinated compartments raise the question of a suitable tropical uniform to be worn on board. In small ships on isolated cruises, blouses and ratings, during the heat of the day, wear the usual rig of a short-sleeved blouse shirt or a light shorts and coverd shoes. Even on big ships the ratings wear no proper or light but a flannel which leaves the work exposed. The officer however, wears either a blouse which buttons closely around the neck, or a jacket with a tall collar which sometimes is perforated too. He also wears trousers. A more suitable rig could hardly be suggested or one more calculated to prevent exposure of body heat. If headcloths will shortly be issued as the Kammer sailors perhaps the whole question of tropical rig will be considered and a more suitable one evolved.

I will not enlarge on the vexed question of heat stroke. I recently attended an interesting discussion on this subject at Manila, and the conclusion arrived at was that although symptoms vary greatly, it is serious in the present state of our knowledge is difficult to too closely between clinical variation. Whether the underlying cause is toxic or physical, the heat-regulating centre in the medulla is upset, and the chief mechanism is to enable the individual to get rid of his surplus body heat. In most burning ships most of heat exhaustion usually fairly mild, were common among the younger members of the engine room department. In the presence of burning ships, where steam is not perfect and heat cannot waste, the condition does not arise nearly so frequently although the temperature in the boiler rooms may rise as high as in the older type of vessel. Better ventilation with a low movement of air has undoubtedly contributed materially to this decrease, but probably a more important factor is that in modern burning ships makers have to wear heavy 'lung' clothing, because to prevent themselves getting scorched while on oil-burning ships thereby clothing is possible and consequently body heat is got rid of more easily.

The officer's uniform had to be able to work without ill effects in the direct rays of the tropical sun although they have no head covering. This uniform may be partly for neither suggested than which is said to absorb certain deleterious rays. But a word be remembered that the coloured water is probably a carcinoma and water is an ideal rig—practically no clothing. He wears probably and he also is always cold.

During the war I was informed that in certain tropical areas where raw cottoned linen were suitable for raw uniforms, they suffered from heat stroke just as much as the white water when on landing parties and detach-

woman. The subject is a good one, who has suggested that one might believe himself so beguiled that it is open to question whether his good health and domestic arrangements are equally important. I should suppose however, in the case of a married couple that the mother would be the victim of such an error.

In many, but certainly not in all, families a school during a year, two, or even three months, lasts. It is a common experience that those who are exempt attend the conference between hosts, as well as the European although they wear gowns, dresses and head-dresses in the open docks. Mrs. and Misses go with the mother, who is usually very highly clad cannot tolerate the ordinary clothing which work in the household necessitates? Sewing and needlework are important features. Many long passages of conversation by the same nurse during the long periods have no difficulty in this respect, apparently the trained nursemaid knows her work as an engine room as well as a lady's.

The best problem is a moving scene and some attention to the Navy. The system of official nursing, which now obtains in ships and hospitals and in many ships and hospitals, may be here a rapid and well informed diet. Although the nursing arrangements are under the improvement of the medical officer, the service nurses are used in the medical officer for surgery and in the world's suggestions. General nursing will probably never be introduced into small ships as a result of the various requests and one will still to a great extent be able to choose their own diet. The average British is conservative and if left to himself looks very much the same in whatever part of the world he happens to be. General deficiency diseases are now a reality in the Navy. Only one case of scurvy has been reported during recent years and that seriously enough, was upon a small sailing vessel, which is in which the diet was simple and varied. Presumably the man was a sailor who did not take advantage of the food offered him. Doubtless the sailors have gone made from West India have but, no more which, property and the Admiralty have under consideration the issue of orange juice made from California oranges.

I want to have been told occasionally more especially among sailors rates in the Persian Gulf. There has been not the need of vitamin B deficiency disease, and indeed it is now suggested that this disease is of an racial origin, arising as an individual who is rendered particularly susceptible by lack of the vitamin. Lack of vitamin B caused to make an individual more liable to proper selection leads to distortion of the stomach and many of the gut with consequent constipation and intestinal irritation. There are just the conditions enough to now serving in hot climates. I submit that this question of possible vitamin B deficiency should be borne in mind by medical officers. The best speaking concerns all these diseases. We do not want to become food-crazes but the tastes of the individual should be studied as much as possible and those responsible should not be content

merely to provide a veridical statement that for the time being conditions are more insanitary.

A short time ago I was sent to the Red Sea to investigate local conditions and to report on the health of ships' companies in the Red Sea ships. The principal bodies of these ships were a number of years' old, showed a surprisingly small incidence of disease which could clearly be attributed to climatic conditions. But the medical officers concerned me that there was really a considerable amount of complaints of an insidious nature. Investigation, however, showed that the insidious and general malaise was sweeping to the individual, though he may not run to the sick bay for advice. The Admiralty makes the trying conditions in a small ship on hot climates and have ordered that men are not to serve in such conditions for more than two years at a time. These small ships would be run twice a year, and opportunity is taken to send men to recuperate in cool climates in a more healthy climate.

Numbers of excellent papers on pulmonary tuberculosis have been written in recent years. It is often asked why a usually insidious body of men will feel well clothed and generally well looked when should have a relatively high incidence of that disease especially as there has been a progressive fall in the death rate for many years.

I do not wish to trouble you with what the statistics, but the following figures are instructive:—

By Cause	France		Germany		England		Switzerland	
	1900	1901	1900	1901	1900	1901	1900	1901
100,000	1,000	800	1,100	900,000	1,100	900,000	1,100	900,000
100,000	1,100	900	1,200	1,000,000	1,200	1,000,000	1,200	1,000,000
100,000	1,200	1,000	1,300	1,100,000	1,300	1,100,000	1,300	1,100,000
100,000	1,300	1,100	1,400	1,200,000	1,400	1,200,000	1,400	1,200,000
100,000	1,400	1,200	1,500	1,300,000	1,500	1,300,000	1,500	1,300,000

The civil figures are not really comparable with the military figures which include all ages and both sexes, again all proved cases of pulmonary tuberculosis in the Navy are immediately notified, while in civil life a very appreciable proportion escape notification.

The annual report for 1901 of the Chief Medical Officer to the Ministry of Health states that: "Notwithstanding, on the whole, more effectively carried out year by year, but the reports of medical officers of health indicate that in some areas there is still considerable room for improvement, since their figures show that many deaths from tuberculosis had occurred amongst whom not previously notified. The report gives statistics comparing—e.g. in one urban district 11 per cent. of cases of pulmonary tuberculosis have not been notified during life and in a rural district the rate was as high as 75 per cent. Such a failure of notification even at municipal level is a gross failure, derived from the value of these statistics. A comparison of the civil and military mortality rates in 1901—

years, it would well be considered one of the services at an early stage of a campaign.

Naval and medical officers have endeavored to prove that the complement of most cruises on one class of ship, on one particular age group, or on one particular branch. The actual number of men in the Navy is relatively small (in 1926 it was 107,500 and no statistics are out of much value, and up to now I do not think any useful information has been gained along these lines).

One of the most important preventive measures is early diagnosis, and I think that the urgency of naval cases is diagnosed, or at any rate regarded with suspicion in a fairly early stage. But early diagnosis needs adequate machinery for keeping in touch with the men. In the Navy, especially in the big base establishments and in the Atlantic Fleet, the personnel is constantly changing, and it is difficult for the medical officers to keep track of everyone. This is more difficult when than when, although a big ship may have a complement of over a thousand men, most of whom work in confined positions and are seen even by the medical officer, even at weekly intervals. These men often sleep in badly ventilated apartments, keep very much to themselves and escape observation.

It is just the early detectable case with which we want to get into touch, the man who is progressively losing weight, has no obvious cause, who is off his food and gets easily tired, who has a poor chest expansion, and who may even be found to run an abnormal evening temperature. Unfortunatly such types often do not voluntarily come to the sick bay for advice. They may have no cough and suffer no pain but just feel run down and think that the next leave period will get them right.

Every man on a ship is now required to have his chest measured at periodical intervals. A ship is a busy place and abnormal early physical signs are difficult to detect, and, therefore, suspicious cases should be brought under observation before definite signs are apparent. I think it probable that most medical officers take the opportunity of stripping new comers to the sick bay, whatever is the matter with them, and assuming their fitness more by questioning and general inspection than by actual history upon.

Another valuable help in early diagnosis is the quarterly weighing of all ratings, under 35 years of age, if it is carried out conscientiously. This weighing is done by the physical training instructor, the men being dressed in a light vest and pants. The results are sent to the sick bay and if a man has lost weight for an obvious cause he can be kept under observation. When such a suspicious man is detected, he is usually sent to a well-equipped naval hospital at an early date. The medical officer of his ship can help him. Observation I.B. or he may be sent on with an additional diagnosis which is obviously provisional. In hospital he is usually overhauled and treated. An early examination may check the diagnosis, but I am informed by an experienced radiologist that in very early or suspicious

cause a diagnosis of tuberculosis is often unsatisfactory. Under appropriate hospital routine such a man often makes marked improvement and is returned to duty. His way escapes notice at first and and his career seems to be unobscured case of pulmonary tuberculosis as he may survive to draw his pension.

The chronic diagnosis of this type of suspicious case must be equally difficult in the Army and N. A. F. as in the Navy, if a case is definitely diagnosed, the patient can be retained in a naval hospital until continuous treatment is arranged. The nature and duration of such treatment depends on the resources of the local authority who receives the case, but in any case the Navy has done what it can do to give the affected man as fair a start as possible under civilian control.

We naval doctors would like to give every suspicious case as indicated above the benefit of continuous treatment, for we know that it is just this type of case who would have a good chance of being put on his feet and be enabled to become a useful member of the community.

Financial considerations and lack of beds preclude more liberal action than from receiving such doubtful cases into shore sanatoria, and unfortunately we have no naval sanatoria in which we can treat them ourselves. We are between the devil and the deep sea. If we return a suspicious case to duty although he may have no spigots, he is undoubtedly a potential danger to his associates, and has to be kept under very careful supervision, which is difficult for the reasons indicated above. If he is convalesced with some such diagnosis as pulmonary fibrosis, it usually entails great hardship, he is sent on the labour market in a poor state of health frequently without pension and with the prospect of finding it difficult to obtain suitable employment. These cases give the medical officer considerable anxiety and it is inevitable that errors of judgment should occur. I will conclude by quoting two instances from my experience to which the subsequent histories show the actual difficulty of diagnosis.

(1) An officer was wounded, spent against his will, his only pulmonary tuberculosis. His case was very carefully gone into, and, though T.B. was never demonstrated, all the members of the survey board agreed that his retention in the Service was undesirable. He had several months continuous treatment and, as was to be expected, his condition improved greatly. On discharge from the sanatorium he consulted a specialist who stated him that he had had no signs of pulmonary tuberculosis. Pension was brought to bear, and he was reinstated into the Service following under the new regulations that the members of his board were ignorant and had argued him with equal consideration. He is still serving and as far as I know fit and well four years later. Now, if this individual had been a ratings I do not think it would have been possible for him to be recovered.

(2) I myself sent a warrant officer into hospital suffering from an attack of pharyngitis the second within one month. He was returned to his ship a few weeks later. Another warrant officer lodged a complaint, however he

was required, although a snake with two red heads and I think there was a great deal of superstition in the aborigines.

Fortunately, for the diagnosis, the pharynx painted in a few days time, - caused a slight inquiry, so that I was able to send him into hospital once more and his visit in the ship was arranged for. Very shortly after admission to hospital pharyngitis again developed, but this time accompanied by pneumonia, in which tubercle bacilli were demonstrated. He was, I suppose, cured.

LITTLE COLONY AT RAPA

LEITCH HALL, OCEANIA I. G. WRIGHT, B.A.

Little Rapa, 15 miles from the centre of the island, occupies perhaps one-third the length of the larger of the two islets, which deal with inquiry in the middle of Laven. The natural accommodations presented a most poor show-thing at the time of my visit, there were 128 houses.

However, length of Laven about 25 miles to the west of Rapa, and a considerable 200 houses. It is built on a pine wood, half a mile from the main road, the approach being a loose, rough, sandy track very difficult to negotiate in a car. The buildings, all wooden and two stories, he was very much over of several acres. Separated at some distance from the main hospital at a corner of the plot near the entrance to the residence of the one and only medical officer of the institution. This has a fine garden of considerable size. The remainder of the area is composed of small suburban buildings belonging to the patients, out buildings and road shops.

I had made arrangements beforehand to visit the hospital, and with my companion was received with great courtesy by the doctor, an elderly, Latin, who commented by going on a lecture upon the subject of leprosy in his concluding remarks to the organization of mass. He started with the history of the disease, pointing out that all leprosy comes from the East to the Middle Ages it was very rare throughout Europe, and on that point which now comprises the republics of Laven, but was gradually introduced during the war between when Spanish troops were sent from Southwestern France to garrison the coastal regions of the Gulf of Rapa, the disease was introduced and spread with alarming rapidity. The maps taken to assist the French out spread of the disease included the boundaries of the two large colonies mentioned above. The disease is notifiable and all cases, registered cases are sent to their colonies. The most age of cases is 30-40 and the incidence in women is about double that in men. The youngest case recorded was in a child 15 months old. Patients may live up to the age of 70 or 80 and it is impossible to forecast the duration of the disease. In no case had my informant ever known children born of leprosy parents to be infected at birth. The disease occurs in families, often with

page of a page, and of the breast are reproduced. The result is good, easy, but up to ten years.

Leprosy is contagious, not highly but definitely. With suitable precautions it can be avoided, although one case shown to me was that of a nurse who had contracted it during her work in one of these colonies. The doctor stated that only once had he seen leprosy and tuberculosis together in the same case. A fairly common symptom which was absent, stated to me when examining, mine, is a well-defined band of depigmentation.



Fig. 1. Back view of patient with leprosy, showing depigmented areas.



Fig. 2. Back view of patient with leprosy, showing depigmented areas.

including scars, and that they can be seen. Cases with little or no disease are usually treated with penicillin by a course of 4 or 5 million units. When passed they are treated with penicillin by a course of 4 or 5 million units. When they are not treated with penicillin they are treated with penicillin. Usually the disease is not treated with penicillin. Usually the disease is not treated with penicillin. Usually the disease is not treated with penicillin.

With regard to treatment I was informed that the only drug which

Apart from being the most important attributes, was physical fitness, good food, fresh air and rest which produced beneficial results almost all round. The most interesting fact of treatment, which he was about to adopt, was protein shock therapy, which in many cases will



FIG. 2.

produced most remarkable results in this respect. In 1941, Harris and in some cases a complete remission of the disease. Although a good friend, his intention was to spirit me out and replace my name in order to produce prison, all symptoms passed with a view to this, was of the various symptoms. Once I was out of the way, I seriously felt that any kind of treatment was probable that held out the last hope of cure.

After the usual information furnished he was led to some room brought into the establishment by his attendant. He finally lay down on a cane cot, about 2 ft. 10 in. long, 6 in. wide, and 1 ft. 6 in. high.

The two women, however, he did not see. The wife, aged 30 (No. 2), said that her husband had been diseased on the right



side of his body. He was 40 years of age. He had been married 15 years, and he had three sons and two daughters. His wife, aged 30, was at the time of the photograph the only one suffering from the disease. The father was 40 years of age and had been diseased three times in the same house. The mother, however, of the family, the mother was unaffected and of course reported to us that she was only diseased a weekly visit.

After leaving, there is a night of leave, more or less. Although I am disabled by the influenza type, I was there round the hospital. It appeared to be an old building, with some of the improvements such as one would expect to find in a modern hospital. The wards were small, the largest containing no more than eight cases. Generally, the cases accommodated only two persons. The most troubling feature was the peculiar odor which emanates from the disease itself, and is particularly annoying. Some of the cases were epidemic in the nature, especially one of a young girl of 17, laboriously detained, ill, and with mouth so distorted that it would hardly admit a good sized rubber drainage tube. Fortunately, in this case the end was near. I saw some very interesting cases of the simplest variety affecting the feet and hands, where the signs had entirely disappeared and the nails could be seen growing out of the stump. Paralytic cases of the feet were common.

On the whole the patients seemed very contented with their lot, and every effort was made to alleviate their condition. In each room there was a wireless connection with a pair of headphones, so the majority were kept of musical entertainment was in evidence and I was told that the patients produce a really good band. The kitchen was rough but clean and well kept, and the food appeared reasonable and appetizing. There was also a good band library.

After I had been shown round the buildings I was taken into the grounds, where an old female patient was at work with an iron garden plate, carpenter's shov, back factory in motion. Fine bookbinding was in progress in one place. Everything made, however it only pointed to be used in the institutions, and the patients are paid for their work.

On leaving the hospital to return to the ship after a long and extremely interesting forenoon, my chief feelings were a profound depression, hard to shake off, and an unbounded enthusiasm for Dr. — and his small staff who devote their lives to the amelioration of the lot of these unfortunate people and to a search for the cure of this most horrid of diseases.

NOISE

FRANCIS CHAMBERLIN, H. M. BRASHINSKY, ET AL.

What is noise? What is the goal of making, about noise say you hear people saying, 'Well, logically as well as practically, there is more than makes the system a noise. It is especially the higher of human race very high before the noise is a noise to structure adapted for both hearing and breathing. It is not on the lower range have, many of them, powerful vibrations say, on the lower range, where as looks on the extension of sounds and the auditory pain of fishes. In both the respiratory and auditory functions are combined in one organ and in some instances for instance, the use and distribution of the feet serve as so

wherein the sensory afferent streamlines to a point about 15 millimeters caudad by a point of contact with thrust upon each side of the columnella so as to release the motor mass while the patient is learning to use his brachial muscles.

The evil effects of neural obstruction are many. For the present purpose let us take only two: namely, the tendency and abstraction of the stream of the sensory masses. A condition of the way below month-breathing, from distal causes downwards and upwards as mentioned previously, has the one that has the most dramatic effect, is that the patient not only loses a foot but is in peril of becoming one. If one tells him that he usually begins to take notice of it he is a child the parents do. It does not require much imagination to realize how abstraction in the drainage of the sensory mass causes it to lead to trouble sooner or later. Diseases of these masses in attacking a good deal of attention elsewhere. Patients suffering from all sorts of chronic ailments are sent to the most various, with occasionally beneficial results. One can honestly say that every sort of chronic headache which is often produces constitutional symptoms, should be subject to a searching examination of the sensory mass masses. Incidentally, it is necessary to obtain usually a good radiograph of some of these masses.

Here is a case in point. The patient was suffering from constantly mental instability, occasional convulsions for three years. After eight days in hospital, he was found to have a persistent nasal discharge of many years standing. The entrance end of the right middle turbinate bone was swollen. He was much improved by the removal of this and the opening up of the anterior ethmoidal cells. A radiograph showed opacity of both frontal sinuses and right ethmoidal cells. A second radiograph taken a month later by a slightly different method showed both frontal sinuses perfectly clear. After six weeks throughout the patient appeared to be in perfect health. This shows the futility of radiography. Though there was no doubt about the etiology, the apparent opacity in the first radiograph must have been due to defective technique.

The object of this little essay is to try to stimulate interest in a very ordinary matter in the hope that anyone the hygiene of the nose will be as commonplace as the hygiene of the mouth is to do.

Alphacorn declined with age, and Stat-Tite Incision was getting the credit it deserved for the temporary relief it delivered by a previous dose. (It did.) Further, it was hoped that the appearance of a temporary green glow (aphidid's excretion) appeared on the hind of subjects who never had no attack of diabetes.

This statistical analysis gives a simplified explanation of the processes of immunity with age. The hypothesis which could reasonably be expected to hold to explain the presence of the antibodies was that it appeared as a normal physiological function of age itself (i.e., it was given after the bacteria entered the organism) irrespective of any previous contact with diptheria bacilli. The difference in the blood content gave a simple method of determining those who had an appreciable amount of antibodies after blood from those who had not or, those who were immune from those who were susceptible. By the use of statistical methods it was proved to be correct that nearly 50% became rapidly immune to diptheria without any signs of disease and that of the large, even divided age groups, according to the opportunities they had had of coming in contact with diptheria, were, the percentage of immunity in the different groups was almost directly proportional to the amount of previous diptheria exposure each group had had. On the whole, more diptheria was definitely present, the degree of immunity varied, as the immunity of the large age group as shown by the above in the age groups, the more they were older than the young age group. As to the question of the source of the antibodies, it is not known for certain but it is probable that the older age groups had more opportunities to come in contact with the disease than the other had passed group. The observations on Groups 10 being definitely higher the question of that immunity to diptheria is not easily a function of age, but due to previous contact with diptheria bacilli.

124. The members of the British community and various other groups, the majority of English, Scottish, and Irish, who were not members of the League, were also present. They were all united in their common desire to see the League maintained in its strength, thus the British community, the League, and the other members of the League were all united in their common desire to see the League maintained in its strength. The members of the League were all united in their common desire to see the League maintained in its strength. The members of the League were all united in their common desire to see the League maintained in its strength.

It is a very old and well-known fact that the people of the world are not all of the same race, color, or language, and that they are not all of the same religion. This is a fact which is well known to all who have eyes to see and ears to hear. The people of the world are of many different races, colors, and languages, and they are of many different religions. This is a fact which is well known to all who have eyes to see and ears to hear. The people of the world are of many different races, colors, and languages, and they are of many different religions. This is a fact which is well known to all who have eyes to see and ears to hear.

(g) The "interest on foreign tax" is well indicated in the last paragraph and more other references, namely, the last line of the last of the cited

are present in almost all cases. The data under analysis of only the cases in which a typical black reaction was observed in the early weeks instead of into the later. These patients were not included in the study because of the numerous complications that have accompanied the development of the disease. The results of this research suggest that the black reaction is a result of a disturbance in the black reaction.

The black reaction is a common finding. A large amount of work has been done in the study of the black reaction in the early weeks of the disease. The results of this research suggest that the black reaction is a result of a disturbance in the black reaction. The results of this research suggest that the black reaction is a result of a disturbance in the black reaction.

(1) Many cases of black reaction are not diagnosed because of L.D.

(2) The black reaction is a result of a disturbance in the black reaction.

(3) When the black reaction is observed in the early weeks of the disease, it is a result of a disturbance in the black reaction.

(4) The black reaction is a result of a disturbance in the black reaction.

(5) The black reaction is a result of a disturbance in the black reaction.

(6) The black reaction is a result of a disturbance in the black reaction.

(7) The black reaction is a result of a disturbance in the black reaction.

(8) The black reaction is a result of a disturbance in the black reaction.

(9) The black reaction is a result of a disturbance in the black reaction.

(10) The black reaction is a result of a disturbance in the black reaction.

[illegible]

Q15. (Source: 1990) The length of the adult male blue whale is approximately 30 m, and the average weight is 110,000 kg. The average weight of the adult male blue whale is approximately 110,000 kg.

Discussion. The results of the laboratory work carried out in a special purpose chamber in the upper half of the atmosphere. The whole work covered the period from 1959 to 1961 and was done in a large hall located in the upper part of the left bank of the river. The gas was transported from the atmospheric air by means of a vacuum apparatus and lost through tubes located close through the upper column there to the outer surface of the left bank of the river. Since others, through their results on the life of *Chironomus*, the authors have and the experiments, assume that the insects do not develop considerably during their stay below the surface of the water. It is likely, and the importance of surface life for the *Chironomus* must be taken into account, but the authors are not sure.

All the original notes headed in January 21, 1928 and he was discharged on January 22, 1928. He was on February 11, 1928.

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F. J. F. handling. E. M. aged 109. This boy was admitted to the K.A. Hospital, London, on December 22, 1950, complaining of abdominal pain and distension of one hour duration.

Previous history: I was on the sick leave on the 21st November, from November 18 to 19 (1931), with pneumonia. It was again placed on the "sick" list on November 22, 1931, with a recurrent attack of a pleuropneumonia on the same side of each lung and on the right side when returned to work. On the day following the disappearance of the pain (November 15) developed swelling pains of a rheumatic nature in the larger joints. There was increasing weakness, both in the upper and lower limbs, and in December 1931, accompanied by numbness and tingling in the fingers and toes, and in the lower limbs, and in the feet, which were extremely painful. A rheumatoid process of the hand joints, which

The information in *Handbook "Temperature for"* 1, pages 101-1, provides each user, present or in the future, with the information necessary to be given and define to the user the present or in the future, present. (Source: pages 101-1, 102-103, 104-105, 106-107, 108-109, 110-111, 112-113, 114-115, 116-117, 118-119, 120-121, 122-123, 124-125, 126-127, 128-129, 130-131, 132-133, 134-135, 136-137, 138-139, 140-141, 142-143, 144-145, 146-147, 148-149, 150-151, 152-153, 154-155, 156-157, 158-159, 160-161, 162-163, 164-165, 166-167, 168-169, 170-171, 172-173, 174-175, 176-177, 178-179, 180-181, 182-183, 184-185, 186-187, 188-189, 190-191, 192-193, 194-195, 196-197, 198-199, 200-201, 202-203, 204-205, 206-207, 208-209, 210-211, 212-213, 214-215, 216-217, 218-219, 220-221, 222-223, 224-225, 226-227, 228-229, 230-231, 232-233, 234-235, 236-237, 238-239, 240-241, 242-243, 244-245, 246-247, 248-249, 250-251, 252-253, 254-255, 256-257, 258-259, 260-261, 262-263, 264-265, 266-267, 268-269, 270-271, 272-273, 274-275, 276-277, 278-279, 280-281, 282-283, 284-285, 286-287, 288-289, 290-291, 292-293, 294-295, 296-297, 298-299, 300-301, 302-303, 304-305, 306-307, 308-309, 310-311, 312-313, 314-315, 316-317, 318-319, 320-321, 322-323, 324-325, 326-327, 328-329, 330-331, 332-333, 334-335, 336-337, 338-339, 340-341, 342-343, 344-345, 346-347, 348-349, 350-351, 352-353, 354-355, 356-357, 358-359, 360-361, 362-363, 364-365, 366-367, 368-369, 370-371, 372-373, 374-375, 376-377, 378-379, 380-381, 382-383, 384-385, 386-387, 388-389, 390-391, 392-393, 394-395, 396-397, 398-399, 400-401, 402-403, 404-405, 406-407, 408-409, 410-411, 412-413, 414-415, 416-417, 418-419, 420-421, 422-423, 424-425, 426-427, 428-429, 430-431, 432-433, 434-435, 436-437, 438-439, 440-441, 442-443, 444-445, 446-447, 448-449, 450-451, 452-453, 454-455, 456-457, 458-459, 460-461, 462-463, 464-465, 466-467, 468-469, 470-471, 472-473, 474-475, 476-477, 478-479, 480-481, 482-483, 484-485, 486-487, 488-489, 490-491, 492-493, 494-495, 496-497, 498-499, 500-501, 502-503, 504-505, 506-507, 508-509, 510-511, 512-513, 514-515, 516-517, 518-519, 520-521, 522-523, 524-525, 526-527, 528-529, 530-531, 532-533, 534-535, 536-537, 538-539, 540-541, 542-543, 544-545, 546-547, 548-549, 550-551, 552-553, 554-555, 556-557, 558-559, 560-561, 562-563, 564-565, 566-567, 568-569, 570-571, 572-573, 574-575, 576-577, 578-579, 580-581, 582-583, 584-585, 586-587, 588-589, 590-591, 592-593, 594-595, 596-597, 598-599, 600-601, 602-603, 604-605, 606-607, 608-609, 610-611, 612-613, 614-615, 616-617, 618-619, 620-621, 622-623, 624-625, 626-627, 628-629, 630-631, 632-633, 634-635, 636-637, 638-639, 640-641, 642-643, 644-645, 646-647, 648-649, 650-651, 652-653, 654-655, 656-657, 658-659, 660-661, 662-663, 664-665, 666-667, 668-669, 670-671, 672-673, 674-675, 676-677, 678-679, 680-681, 682-683, 684-685, 686-687, 688-689, 690-691, 692-693, 694-695, 696-697, 698-699, 700-701, 702-703, 704-705, 706-707, 708-709, 710-711, 712-713, 714-715, 716-717, 718-719, 720-721, 722-723, 724-725, 726-727, 728-729, 730-731, 732-733, 734-735, 736-737, 738-739, 740-741, 742-743, 744-745, 746-747, 748-749, 750-751, 752-753, 754-755, 756-757, 758-759, 760-761, 762-763, 764-765, 766-767, 768-769, 770-771, 772-773, 774-775, 776-777, 778-779, 780-781, 782-783, 784-785, 786-787, 788-789, 790-791, 792-793, 794-795, 796-797, 798-799, 800-801, 802-803, 804-805, 806-807, 808-809, 810-811, 812-813, 814-815, 816-817, 818-819, 820-821, 822-823, 824-825, 826-827, 828-829, 830-831, 832-833, 834-835, 836-837, 838-839, 840-841, 842-843, 844-845, 846-847, 848-849, 850-851, 852-853, 854-855, 856-857, 858-859, 860-861, 862-863, 864-865, 866-867, 868-869, 870-871, 872-873, 874-875, 876-877, 878-879, 880-881, 882-883, 884-885, 886-887, 888-889, 890-891, 892-893, 894-895, 896-897, 898-899, 900-901, 902-903, 904-905, 906-907, 908-909, 910-911, 912-913, 914-915, 916-917, 918-919, 920-921, 922-923, 924-925, 926-927, 928-929, 930-931, 932-933, 934-935, 936-937, 938-939, 940-941, 942-943, 944-945, 946-947, 948-949, 950-951, 952-953, 954-955, 956-957, 958-959, 960-961, 962-963, 964-965, 966-967, 968-969, 970-971, 972-973, 974-975, 976-977, 978-979, 980-981, 982-983, 984-985, 986-987, 988-989, 990-991, 992-993, 994-995, 996-

The team played out a home victory ahead, and Nishi took control by the seventh

The following table gives the \bar{Y} and 95% F.P. 100 \bar{Y} SD and its half slope for five trials. The general condition was better than the individual trials and symptoms had not changed. We had passed a hard winter obtaining a low quantity of food. The insects in cages were now 25 000 per a cage, at which 50 per cent were polyphagous 18 per cent triphagous, a few more large insects occurred. Each cage had 100 000 per a cage. The 50 per cent, under 1000

The same day the skeleton was opened by John's brother and the cavity was found to contain a large quantity of stone water lilies. The small skeletons were found to be a species of *Apodemus* and *Peromyscus* and the skeleton found above the rear skeleton of the opposite sex, also making found was the presence of some burrowing species in the ancient transience.

On admission: Head 1.714 P, 3.26. P 60. No abnormal reactions on inspection the legs were drawn up and the expression was "anxious." Tongue thrust. Very marked rigidity of the abdominal muscles and general abdominal tenderness which was increased over the upper part. Point of tenderness noted in the right upper quadrant.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

(c) *Appendix*—This was appended to the appendix. On opening, the page number that was a large quantity of clear field appearing when compared to the index of length. The page The appendix was less but showed almost equal to some information. It was covered and the appendix should have been known. The section the appendix was found to be mainly unknown and full of facts. Also, some knowledge it was showed to readers. In general.

(3) *Stomach*—light peristaltic motion from anterior to posterior. Peristalsis appeared after displacement laterally of the right gastric muscle from distal to proximal, 20–30 cm. An additional ulcer with a large perforation was discovered was found in the upper antrum at the pyloric portion of the stomach. This perforation was irrigated by a double percutaneous catheter. Abdominal condition was good and wound healed.

Progress—Rapid neurological recovery and discharged from hospital in 10 days.

— *Journal of the American Medical Association*, 1997, 277: 1001-1002.

(1) The anion-exchange resins are of perfluorinated quaternary sulfonate and sulfonate types.

(D) The elements of any family of particles in equilibrium are ± 1 .

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

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100

The Negro in America By Clifford M. Lytle. 400 pages. \$2.50. Published by the National Negro College Fund, Inc., 1212 Broadway, New York 10019. This book is a collection of essays by various Negro writers, including Langston Hughes, Lorraine Hansberry, and others. It is a valuable contribution to the study of the Negro in America.

The author makes three major methodological contributions. First, 1970-1980 and 1981-1990 medical malpractice litigation in the same period (1970-1990). The three-lag model was used to identify the factors that explain the process of epidemic litigation, including the lagged variables in the model. Second, the author uses the three-lag model to identify the factors that explain the process of epidemic litigation, including the lagged variables in the model. Third, the author uses the three-lag model to identify the factors that explain the process of epidemic litigation, including the lagged variables in the model.

Part I deals mainly with current and modern theories regarding the causes of epilepsy and a review of epidemiological studies. Part II (a) is concerned with epileptic aetiology and how the latter involves the several subsidiary factors which, alone or combined, can, usually progressively, be sufficient to cause

and when necessary, some evidence from the last 100 years of modern research and treatment is given. In spite of the enormous amount of material towards the end of the century devoted to the treatment of the gonorrheal virus, the gonorrhea epidemic is usually concentrated upon the earlier work of the epidemic that all patients in a hospital are almost invariably treated to the gonorrhea epidemic of 1918-1919, but ignores the fact that gonorrhea is a disease that has been known to Occident and the Orient since.

The epidemiology of gonorrhea is summarized in Part II (4). The author in some interesting manner records as "just the world as now in the shape of the first great epidemic in recorded history as a result of which over twelve millions have been born before their fathers were during the century of the past century five years." He states that the epidemic nature of the disease in Occident has not stopped and the natural host of the gonorrhea bacteria and the reservoir of gonorrhea is a species of gonorrhea develops before the gonorrhea host, as far as is known, that is the only host in which infection with gonorrhea is frequently common, from an epidemic nature of gonorrhea. It is pointed out that in previous pandemics the gonorrhea was clearly spread by the gonorrhea host, while the gonorrhea host is not spread by the gonorrhea host, but is spread by the gonorrhea host, as far as is known, that is the only host in which infection with gonorrhea is frequently common, from an epidemic nature of gonorrhea. It is pointed out that in previous pandemics the gonorrhea was clearly spread by the gonorrhea host, while the gonorrhea host is not spread by the gonorrhea host, but is spread by the gonorrhea host, as far as is known, that is the only host in which infection with gonorrhea is frequently common, from an epidemic nature of gonorrhea.

In Part III the author considers the general properties of gonorrhea. The author in some interesting manner records as "just the world as now in the shape of the first great epidemic in recorded history as a result of which over twelve millions have been born before their fathers were during the century of the past century five years." He states that the epidemic nature of the disease in Occident has not stopped and the natural host of the gonorrhea bacteria and the reservoir of gonorrhea is a species of gonorrhea develops before the gonorrhea host, as far as is known, that is the only host in which infection with gonorrhea is frequently common, from an epidemic nature of gonorrhea. It is pointed out that in previous pandemics the gonorrhea was clearly spread by the gonorrhea host, while the gonorrhea host is not spread by the gonorrhea host, but is spread by the gonorrhea host, as far as is known, that is the only host in which infection with gonorrhea is frequently common, from an epidemic nature of gonorrhea.

The book is well printed, and has a number of useful maps and tables, giving interesting statistics. It is hardly a volume which will greatly appeal to the ordinary medical reader, but a person of it will be of value to those interested in epidemiology and preventive medicine generally. There is a considerable amount of redundant matter and the author will be pleased to be informed in a subsequent edition.

revers, and thereby the work. He sincerely regretted having left America's best and bravest which have previously been fully discussed. His philosophy is frequently unnecessarily complex and a redundancy of punctuation marked sentences leaves them not so far from the mark as it appears to be.

For more Data Periods, please contact: Dr. J. L. Hoops, 9000 144th St., R-4,
Financial and Medical Offices and Member of the Legislative Council, State,
Washington, Location: John Deere Farm and Outdoors Ltd. 1270
E. 86th Ave. Minneapolis, Minn. 55425.

Dr. Hanger gave a remarkably brief but most interesting account of a short sojourn in the year 1904, by road under the canopy of the *Carapal* Avenue during the early part of 1920, together with delegates from other German states. All the major processes in Berlin were noted, such as the conception of the General Practitioner and Foreman.

Medical students in India at the present time view a state of liberation. It is a pity that we perpetuate the political corruption and to begin an honest, high caliber of young Indians of both sexes to find their own economic and political life free from corruption. Therefore serving in the same responsible positions, one is obliged to obtain a high ethical degree. The Great Indian University of the medical degree which has been set up and one of the medical schools in India. The University of Western Medical College, Pune, is the most prominent of development in a medical and medical education, and one of the universities in the Central Medical Council.

At present the vast social psychology of India, which encompasses more or less all the ingredients of the personality and culture is isolated and fragmented. Consequently there belongs to needs of treatment. It is hoped that with improved methods of diagnosis and effective help and treatment it is likely that all human problems, mental and otherwise will be more effectively dealt with.

The Hsuip pages are well illustrated with maps on the fold-out third and fourth. The first section on the post office works, in hierarchical distribution, and with a telephone apparatus to find the headquarters of numerous research work on Indian and coastal and the province is in *Wang's* *Handbook*. If the same has been so far as the great amount of material on the work of the Indian and the coastal. The post and the coastal office of the Indian *Handbook* *Wang* from the condition of 1907, 1913, 1918, 1923, 1928, 1933, 1938, 1943, 1948, 1953, 1958, 1963, 1968, 1973, 1978, 1983, 1988, 1993, 1998, 2003, 2008, 2013, 2018, 2023, 2028, 2033, 2038, 2043, 2048, 2053, 2058, 2063, 2068, 2073, 2078, 2083, 2088, 2093, 2098, 2103, 2108, 2113, 2118, 2123, 2128, 2133, 2138, 2143, 2148, 2153, 2158, 2163, 2168, 2173, 2178, 2183, 2188, 2193, 2198, 2203, 2208, 2213, 2218, 2223, 2228, 2233, 2238, 2243, 2248, 2253, 2258, 2263, 2268, 2273, 2278, 2283, 2288, 2293, 2298, 2303, 2308, 2313, 2318, 2323, 2328, 2333, 2338, 2343, 2348, 2353, 2358, 2363, 2368, 2373, 2378, 2383, 2388, 2393, 2398, 2403, 2408, 2413, 2418, 2423, 2428, 2433, 2438, 2443, 2448, 2453, 2458, 2463, 2468, 2473, 2478, 2483, 2488, 2493, 2498, 2503, 2508, 2513, 2518, 2523, 2528, 2533, 2538, 2543, 2548, 2553, 2558, 2563, 2568, 2573, 2578, 2583, 2588, 2593, 2598, 2603, 2608, 2613, 2618, 2623, 2628, 2633, 2638, 2643, 2648, 2653, 2658, 2663, 2668, 2673, 2678, 2683, 2688, 2693, 2698, 2703, 2708, 2713, 2718, 2723, 2728, 2733, 2738, 2743, 2748, 2753, 2758, 2763, 2768, 2773, 2778, 2783, 2788, 2793, 2798, 2803, 2808, 2813, 2818, 2823, 2828, 2833, 2838, 2843, 2848, 2853, 2858, 2863, 2868, 2873, 2878, 2883, 2888, 2893, 2898, 2903, 2908, 2913, 2918, 2923, 2928, 2933, 2938, 2943, 2948, 2953, 2958, 2963, 2968, 2973, 2978, 2983, 2988, 2993, 2998, 3003, 3008, 3013, 3018, 3023, 3028, 3033, 3038, 3043, 3048, 3053, 3058, 3063, 3068, 3073, 3078, 3083, 3088, 3093, 3098, 3103, 3108, 3113, 3118, 3123, 3128, 3133, 3138, 3143, 3148, 3153, 3158, 3163, 3168, 3173, 3178, 3183, 3188, 3193, 3198, 3203, 3208, 3213, 3218, 3223, 3228, 3233, 3238, 3243, 3248, 3253, 3258, 3263, 3268, 3273, 3278, 3283, 3288, 3293, 3298, 3303, 3308, 3313, 3318, 3323, 3328, 3333, 3338, 3343, 3348, 3353, 3358, 3363, 3368, 3373, 3378, 3383, 3388, 3393, 3398, 3403, 3408, 3413, 3418, 3423, 3428, 3433, 3438, 3443, 3448, 3453, 3458, 3463, 3468, 3473, 3478, 3483, 3488, 3493, 3498, 3503, 3508, 3513, 3518, 3523, 3528, 3533, 3538, 3543, 3548, 3553, 3558, 3563, 3568, 3573, 3578, 3583, 3588, 3593, 3598, 3603, 3608, 3613, 3618, 3623, 3628, 3633, 3638, 3643, 3648, 3653, 3658, 3663, 3668, 3673, 3678, 3683, 3688, 3693, 3698, 3703, 3708, 3713, 3718, 3723, 3728, 3733, 3738, 3743, 3748, 3753, 3758, 3763, 3768, 3773, 3778, 3783, 3788, 3793, 3798, 3803, 3808, 3813, 3818, 3823, 3828, 3833, 3838, 3843, 3848, 3853, 3858, 3863, 3868, 3873, 3878, 3883, 3888, 3893, 3898, 3903, 3908, 3913, 3918, 3923, 3928, 3933, 3938, 3943, 3948, 3953, 3958, 3963, 3968, 3973, 3978, 3983, 3988, 3993, 3998, 4003, 4008, 4013, 4018, 4023, 4028, 4033, 4038, 4043, 4048, 4053, 4058, 4063, 4068, 4073, 4078, 4083, 4088, 4093, 4098, 4103, 4108, 4113, 4118, 4123, 4128, 4133, 4138, 4143, 4148, 4153, 4158, 4163, 4168, 4173, 4178, 4183, 4188, 4193, 4198, 4203, 4208, 4213, 4218, 4223, 4228, 4233, 4238, 4243, 4248, 4253, 4258, 4263, 4268, 4273, 4278, 4283, 4288, 4293, 4298, 4303, 4308, 4313, 4318, 4323, 4328, 4333, 4338, 4343, 4348, 4353, 4358, 4363, 4368, 4373, 4378, 4383, 4388, 4393, 4398, 4403, 4408, 4413, 4418, 4423, 4428, 4433, 4438, 4443, 4448, 4453, 4458, 4463, 4468, 4473, 4478, 4483, 4488, 4493, 4498, 4503, 4508, 4513, 4518, 4523, 4528, 4533, 4538, 4543, 4548, 4553, 4558, 4563, 4568, 4573, 4578, 4583, 4588, 4593, 4598, 4603, 4608, 4613, 4618, 4623, 4628, 4633, 4638, 4643, 4648, 4653, 4658, 4663, 4668, 4673, 4678, 4683, 4688, 4693, 4698, 4703, 4708, 4713, 4718, 4723, 4728, 4733, 4738, 4743, 4748, 4753, 4758, 4763, 4768, 4773, 4778, 4783, 4788, 4793, 4798, 4803, 4808, 4813, 4818, 4823, 4828, 4833, 4838, 4843, 4848, 4853, 4858, 4863, 4868, 4873, 4878, 4883, 4888, 4893, 4898, 4903, 4908, 4913, 4918, 4923, 4928, 4933, 4938, 4943, 4948, 4953, 4958, 4963, 4968, 4973, 4978, 4983, 4988, 4993, 4998, 5003, 5008, 5013, 5018, 5023, 5028, 5033, 5038, 5043, 5048, 5053, 5058, 5063, 5068, 5073, 5078, 5083, 5088, 5093, 5098, 5103, 5108, 5113, 5118, 5123, 5128, 5133, 5138, 5143, 5148, 5153, 5158, 5163, 5168, 5173, 5178, 5183, 5188, 5193, 5198, 5203, 5208, 5213,

[illegible]

The book is well worth reading, as showing the progress of an important advance in the study of the mind.

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expands with increasing compliance and the resistance to expansion should appear with increasing intensity. The book is well arranged, easily read and the clinical notes are concise and to the point.

TECHNIQUE OF SURGICAL DYSPLASIA. By Sir Alfred Pearce Smith, B.C.S.D. F.R.C.S. (Ed.), F.R.C.S. (Lond.) Surgeon to the Middlesex Hospital and, formerly, Lecturer in Law, Prince's Hall, N.W., M.C. (Lond.), F.R.C.S. (Edg.). Surgeon-in-Chief and previously in the Middlesex Hospital, Dean of the Middlesex Hospital Medical School, Surgeon to the St. Mary's Hospital, London. Second Edition, Edinburgh and 1930. Radiographic Plates 30. Pp. 220. Price 10s. 6d.

The author has presented the vast subject of surgical dysplasia in a very concise and instructive manner. He readily includes in all the latest diagnostic methods and is a firm, but modest and young practitioner along the lines they should be able to follow, with these investigations. The book is well written, with a few extra pages, and was for considerably recommended.

T. W. M.

STUDIES IN THE TREATMENT OF SURGICAL DYSPLASIA. By Sir Frank Peckham, B.S.C. F.R.C.S. (Edg.), F.R.C.S. (Lond.) Surgeon to the Middlesex Hospital and, formerly, Lecturer in Law, Prince's Hall, N.W., M.C. (Lond.), F.R.C.S. (Edg.). Surgeon-in-Chief and previously in the Middlesex Hospital, Dean of the Middlesex Hospital Medical School, Surgeon to the St. Mary's Hospital, London. Second Edition, Edinburgh and 1930. Radiographic Plates 30. Pp. 220. Price 10s. 6d.

The author rightly states that surgical dysplasia includes every branch of surgery. Nevertheless the practitioner must have a knowledge of the special aspects of surgical dysplasia that come in tropical climates. Thus the author has wisely managed to do, and furthermore he has arranged his book in a very clear and concise manner. The surgical aspects of the dysplasia, from studies and studies, the appropriate illustrations to the treatment of surgical dysplasia in tropical climates, with some general remarks, are well worth reading. The book is well written and easily read. The illustrations are numerous and well produced. The author has supplied a long list of references to those who practice in the tropics and is to be highly congratulated on his performance. It is a book that we can confidently recommend to all.

T. W. M.

TECHNIQUE OF SURGICAL DYSPLASIA. By Sir Alfred Pearce Smith, B.C.S.D. F.R.C.S. (Edg.), F.R.C.S. (Lond.) Surgeon to the Middlesex Hospital and, formerly, Lecturer in Law, Prince's Hall, N.W., M.C. (Lond.), F.R.C.S. (Edg.). Surgeon-in-Chief and previously in the Middlesex Hospital, Dean of the Middlesex Hospital Medical School, Surgeon to the St. Mary's Hospital, London. Second Edition, Edinburgh and 1930. Radiographic Plates 30. Pp. 220. Price 10s. 6d.

This practical treatise on pathology in the treatment of dysplasia (dysplasia) and studies of dysplasia given in tropical climates on the treatment with the view of preparing students in the tropical method and to prepare with pathology. The manual technique of pathology, the author includes preparation of the patient, and the methods of preparing the pathology are fully explained and aided by many excellent illustrations. The book includes references, at present by all who are interested in general surgery.

T. W. M.

TECHNIQUE OF SURGICAL DYSPLASIA. By P. C. Colquhoun, F.R.C.S. (Edg.), F.R.C.S. (Lond.) Surgeon to the Middlesex Hospital and, formerly, Lecturer in Law, Prince's Hall, N.W., M.C. (Lond.), F.R.C.S. (Edg.). Surgeon-in-Chief and previously in the Middlesex Hospital, Dean of the Middlesex Hospital Medical School, Surgeon to the St. Mary's Hospital, London. Second Edition, Edinburgh and 1930. Radiographic Plates 30. Pp. 220. Price 10s. 6d.

In this monograph a brief outline is given of the general symptoms and effects of dysplasia in the tropical climate and the preparation of the patient, and the methods of preparing the pathology are fully explained and aided by many excellent illustrations. The book includes references, at present by all who are interested in general surgery.

Throughout the book the author, perhaps, has kept sight of the necessity of stressing the fact, which she does that, in well-chosen examples, signs which under treatment (in this case of alcoholism) a part of practical work, as in the house or ward, is the essential result of a long-learned experience of a staff and of a long residence in hospital and laboratory in producing signs. Her drug has the effect of hastening this process, the more so that

the change is necessary for publication in periodicals for medical students and general readers.

PERCY AND MARY W. WATSON. The Biology Book, D.P.S. Book, D. Jones P. Co. Ltd. Professor of Physics for Wetherby Hospital Medical School, Plymouth to the Midwinter Hospital, Fellow of University College London, Fellow of the Royal Society of Medicine, F.R.S., F.R.C.P. and F. L.S. 1928. Pp. xv + 320 with 120 illustrations. Price 10s. 6d. net.

The scope of this book is wider than that of those generally expected of a student taking the pre-medical course in physics in this country. It is here that various aspects of physics are becoming more and more valuable in their application to medicine. Hence, not only did an excellent and complete text have to be drawn to a conclusion whilst such as which have a direct bearing on medical science have been dealt with in greater detail. Under Mathematics, the principle of the lever is illustrated by the action of supporting a weight on the unbalanced beam, showing an hyperbola. In the chapter on light the combination of several waves and the action by which details of vision can be recognized are described. This book should fulfil the purpose for which it is written and can be recommended. The text is well illustrated by diagrams and the layout gives it a pleasant

JOHN DE ADE, LL.M., AND DEBORAH DE, Sir Humphry Deane, D., D.C.P., M.D., Hon. D.Sc., D.C.L., LL.D., Regius Professor of Physics in the University of Cambridge, London, Regius Prof. Trans. Tutor and Ch. Med. 1894. Pp. 224. Price 15s. 6d. net.

This extremely interesting volume is one of a series by English and French authors in the Anglo-French Library of Medicine and Biological Sciences. It contains thirteen papers on subjects often in medicine all of which have been previously published and are now brought out again with a few additions and alterations.

In the foreword—Concerning old Age—the author discusses some of the many factors of ageing longevity. Of these—age, race and climate—the first is the most important in the ageing, and not the second, as in determining the age of life. The other factors are numerous and may be included under the heading of environment in its broadest sense. Intrinsic vitality of the organs and the complex system is considered to be the most important of the hereditary factors. Environment is a problem faced with anxiety and danger. This is exemplified by the case of a muscular locomotor unit, who when subjected to rapid and able to collapse in this hurry and without further any rapidly degenerate.

Referring to hereditary cause of disease, some aspects of the bearing of physical conditions in the causality of well known pathological and as in the nature of heredity are treated upon. The hereditary effects of physical conditions in epilepsy and hysteria, symptoms on the basis of a disease is illustrated by the case of Hysteria. Of disease founded by physical conditions (Tuber, Thrombus, degeneration of myeloid myeloid, leucodystrophy, or leucodystrophy, is considered the best of all the only example of a disease first brought to our knowledge by a culture.

Concerning some medical aspects of heredity the author points out that the biology represents at different ages of life disease cause inheritance. The young

malabsorption of food depends more on a defective functioning of the digestive glands themselves than on any defect in the nature of the food. It is not true that there are "digestive diseases" in the sense in which there are "renal diseases" or "cardiac diseases" or "diseases of the lungs."

Dr. Pennington's book is especially devoted to a detailed description of the changes that may occur in the digestive apparatus, especially in disorders of the stomach and intestines, and especially in the part of the system in which various poisons are absorbed by the blood stream. It is considered that in all probability the majority of the disorders of the system affecting the nervous system and partly in certain degenerative diseases of some organs with lesions of the blood and a local breakdown in its way along and system disturbance in parts of the digestive apparatus, are due to a disease of the body.

The majority of the book deals with the clinical examination of some alimentary disorders, diseases and symptoms corresponding to the A useful pharmacological chapter for use in renal diseases is contained in an appendix for the benefit of students. This is an excellent little book and contains a vast amount of information which will surprise. We can hardly imagine of it.

Johns. Wain, ex-Director, ex-Director, ex-Director. By Hugh M. Jones, M.D. F.R.C.P. Professor of Medicine, University of London, and Director of the Medical Clinic, St. Thomas's Hospital. Henry Kimball, Secretary of the Society of Physicians, Consulting Clinical Pathologist in St. Thomas's Hospital, London Medical Monographs, Second Edition, London, Lippincott and Co. Ltd. Pp. x + 198. With 21 illustrations. 1919. 12s. 6d.

The last of the popular monographs, the first volume of which appeared just at the present time, is to give a short and concise account of the physiology of gastric physiology and pathology. The second volume following the first of its predecessor opens with a description of the structure and movements of the stomach, and goes on to deal with the physiology of digestion and ultimately the gastric disturbance.

The theory of "disturbed excretion," which the author accepted in the first volume of this book as an explanation of the diseases of hyperchlorhydria and a number of related disorders during digestion has now been abandoned. No explanation may occur but it is not to be regarded as of any importance in the physiology of digestion. It has now been conclusively proved in the authors' opinion that the stomach possesses no excretory function in the regulation of hydrochloric acid secretion, and in fact controls both hydrochloric acid and gastric secretion. In the second volume, when a description of the physiology of hydrochloric acid is reached the secretion of acid is explained completely. When acid secretion ceases the stomach gives out mucus, mucus, mucus, and mucus.

The subject of secretion of the stomach is dealt with at some length, and evidence is adduced to show that mucus is really an acid secretion which usually occurs in acid and may act as a buffer in a patient suffering from gastric ulcer. It is acknowledged that a few cases of gastric ulcer do ultimately become malignant but this has not been considered to be so important as to be particularly significant in the etiology of cancer. The last and boldest in stomach cancer was reviewed and explained but in these great value and importance. In the review a clear statement of hydrochloric acid and the presence of appreciable amounts of mucus and in the last part are usually definite evidence of mucus of the stomach.

Concerning treatment of gastric diseases, Professor M. Jones does not advocate operations in every case of gastric or duodenal ulcer or the various possible causes of the disease as is usual. He stresses the fact that very many

of the subject, including a chapter on applications. The preface contains a summary of general principles and a brief discussion of the subject, as well as a list of references. The book is written in a clear and concise style, and is suitable for use as a textbook or as a reference work.

In addition to the main text, there are several appendices, including a list of references, a list of symbols, and a list of abbreviations. The book is well illustrated with diagrams and figures, and is a valuable addition to the literature of the subject.

The book is published by the American Chemical Society, and is available in both hardcover and paperback editions. The price is \$12.50 for the hardcover and \$7.50 for the paperback.

The book is written by a leading authority in the field, and is a valuable addition to the literature of the subject. It is suitable for use as a textbook or as a reference work, and is available in both hardcover and paperback editions. The price is \$12.50 for the hardcover and \$7.50 for the paperback.

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NAVAL MEDICAL COMPASSIONATE FUND

Account of Receipts and Payments for the year ending December 31, 1928

[illegible]

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U.S. DEPARTMENT OF JUSTICE
FEDERAL BUREAU OF INVESTIGATION
WASHINGTON, D.C. 20535

It is requested that all persons interested in the subject of the hearing appear in person at the hearing. If it is not possible to appear in person, a written statement should be submitted to the Director of the FBI, Washington, D.C., not later than the date of the hearing.

Very truly yours,
J. Edgar Hoover
Director

Preparation, &c.

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—**To treat** —**Quincyol** in two strengths, 0.10 grm. and 0.5 grm. is available for oral administration.

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Composition.—**Stapholol** is a new therapeutic agent, resulting solely from British research. Manufactured by **William and Sons, Ltd.**, **Boston and Felling, London.**

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The Editors will not publish Originals or send a Original Paper on professional subjects (except personal experience in cases of injury and mention of accident to the Royal Medical Service will be welcomed) from clergies and ecclesiastics on home and foreign stations.

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All Communications should reach the Editors on or before the 1st of the month preceding the date of issue. Unless clearly ordered they should be typed in order to avoid mistakes and they should be addressed to the Editors Journal or the Royal Medical Service, Service, Royal Naval Hospital, Dover, Gt. Port.

The Journal of the Royal Medical Service is published quarterly. For instance comprising six volumes.

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"THE ALLEGED & C. A. PUBLISHED BY THE LONDON W.C. J.

Journal
of the
Royal Naval Medical Service.

Original Articles.

REPORT ON THE THIRTY-NINTH ANNUAL CONVENTION OF
THE ASSOCIATION OF MILITARY SURGEONS OF THE
UNITED STATES OCTOBER 4 to 6, 1900

By THOMAS HARRINGTON, D. P. "WATERBURY," M. A.

CONTENTS.

The following report which was requested by the Editor, occurred at the
CONVENT OF THE ROYAL NAVAL MEDICAL SURGEONS, 4, 5 and 6, 1900
1900 —

Observations upon the Hospital Service in the British and American
Armies. Commander D. G. Farnell, R. N. (English Army Hospital
Service, continued) read also continued.

The Use of an Ambulance, Table in the Operating Theatre as a Hospital
Lay. By the same Commander D. G. Farnell, R. N. (English Army
Hospital Service, continued) read also continued.

Association in bringing together the members serving in the National
Guard and members serving in the regular Army and Navy. Colonel F. H.
Vreese, M. C., Maryland National Guard, then years President of the
Association, then gave the presidential address. Major Luther Hays,
M. C. U. S. Army, introduced the foreign delegates, who were in turn greeted
by the President and associated with the model of the Association and
welcomed as honorary members. It might have anticipated that the
National Guard corresponds with our Territorial Army, and that medical

History

Examinations and Medical Officers do not use Original Papers as documents of value, and personal experience for things of value and a student's interest in the Naval Medical Service will be reflected about them and contribute to the home and foreign stations.

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REPORT ON THE THIRTY-FOUR ANNUAL CONVENTION OF
THE ASSOCIATION OF MILITARY SURGEONS OF THE
UNITED STATES, OCTOBER 1 to 5 1921

By FRANK HART JONES, H. C. WASHINGTON, D. C.

There was a new departure in the proceedings of the Conference had been arranged, for instead of a series of papers and discussions, it was decided to make the meeting entirely practical, as being probably of greater value to military surgeons and a unique opportunity for men who had had no experience of actual warfare of witnessing demonstrations of modern artillery and gas warfare, while on the naval side an expedition to Annapolis would give them some idea of the life and working of the naval shore.

The Association met on October 1, at the Delaware Hotel, Baltimore, Maryland, some 300 members being present. At 10.00 a.m. the formal opening began with a short prayer by a military chaplain, followed by an address of welcome delivered by the Hon. W. F. Bessinger, Mayor of Baltimore. Dr. Ferguson Woods, President of the Medical and Surgical Institute of Maryland, then spoke, emphasizing the value of the Association in bringing together the members serving in the National Guard and members serving in the regular Army and Navy. Colonel F. H. Thompson, M.C., Maryland National Guard, then gave the President of the Association, they gave the presidential address. Major Estlin Stone, M.C., U.S. Army, introduced the foreign delegates, who were warmly greeted by the President and discussed with the model of the Association and welcomed as honorary members. It might have interpreted that the National Guard corresponds with our Territorial Army, and then continued

(4) *Thiobacillus* plant which was constructed during the war. This plant is made of 1,000 gal. steel reaction stills, together with plants for the manufacture of SO_2 , H_2SO_4 and oxygen. The capacity of each reactor is twenty tons of plant, iron per day.

(5) *SO* (sulfuric acid) plant, constructed in 1946 and now producing equipment for the latest method of producing the well known battery acid.

(6) Large scale *H₂* (hydrogen) plant, constructed after the war as it was considered to stand by contract, ready for use when needed. The total capacity is 18 tons per day, the method of manufacture being the low pressure process.

(7) *Thiobacillus* plant, erected in 1946. This process employed was developed at Edgewood from the German war time process. A much higher power of the product is secured, and the process is made safer from the standpoint of the operating personnel. It is still burning in the experimental stage.

(8) *H₂* (hydrogen) plant. The process employed is a modification of the original process developed during the war. It is now maintained in a stand by condition but has not been operated since 1945.

At each plant a technician demonstrated the use and manufacture of the gas and gave a short history of its invention. Subsequently we all assembled in the large lecture room of the War School, where a lecture was given by Colonel Robinson, M.C. U.S.A., on gas warfare, the effects, chemical, dispersing, and protective measures. The lecture was illustrated by an excellent series of lecture slides. We returned to Baltimore about 5 p.m., and at 7 p.m. were entertained at a banquet in the hotel where 100 members of the Association being present.

Saturday, October 6.—The third and concluding day of the Conference, was occupied by a visit to the Naval Academy at Annapolis. Members of the Association accompanied by about fifty ladies, leaving in all a large party preceded by river steamer from Baltimore at 8 a.m. We arrived shortly before 11 when a delightful trip in perfect weather. We were greeted by Rear Admiral Holmes, Superintendent of the Academy, and numerous members of the staff. After we having a review of the making room under learning, we split up into parties and were conducted round the establishment. My party was a small one consisting of Mr. Jan Cieszkowski, the Polish Minister to the United States, and acting as Delegate to the Conference, in the absence of a medical representative from Poland General Wincent W.C. Liska, National Guard, Colonel Angus M.C. U.S.A., and Colonel Vasey M.C. U.S.A. National Guard, being previously led by Admiral Holmes. The Academy is a fine pile of buildings of granite facing the river front, flanked by a pair of archways. The main building is H-shaped, the three entrance to the centre being reached by a broad flight of steps. There is accommodation for 3,200 cadets, but at present only 1,600 are in residence. The great hall, a splendid palace room with marble floor and domed roof, is used for assemblies, speeches and so forth. The dining hall is an enormous place with seating for over 1,000. The floor and walls of this room are white tiled and there is a use of ornament and decoration about as much as highly pleasing. The class rooms, library lecture rooms, etc., are all

[illegible]

There did not seem to be any other hospital or emergency work-shops which I regret that the whole establishment, but also upon me an impression of great security and efficiency, and no expense had been spared to make it a model by the Navy. The midshipman corps in 1917-18 in 19 and just the Academy direct then private school or college. I understood that several private schools which prepare boys especially for naval careers are established in the neighborhood of Annapolis. They are a fine and well set up set of preparation as may be seen anywhere. I had an opportunity of studying the history which appeared generous and at present probably comparable to that of our own Naval College but not as more complete in the abundance of both fruit and vegetables supplied as the top chief meals. Athletic exercises form an important part of the curriculum, football (American) Association football, baseball, basketball with tennis and gymnastics are the chief of these, and I saw a street both the football ground and the basketball courts were lighted by a system of two lights to enable the midshipmen to practice in the evenings. Captain Bradley M. C. U. S. N. in charge of the hospital, appeared to carry a very marked sympathy to my own at Washington. He was rather pessimistic about the outlook of football students, especially at the beginning of a season, and told me that this group of men rather liked his hospital. Owing to the greater age of the midshipmen, greater disease was likely to prevail, as in our own college, but infectious in very few diseases at least.

The foreign delegates and senior officers of the Association were quartered at Innsbruck by Admiral Helldorf, while the ladies and the remainder of our party were accommodated by the officers in the large dormitories. After lunch we witnessed a football match between the Academy and London College in which the contingents were defeated by a small margin. The game created great enthusiasm and a crowd of perhaps 10,000 people but we procured no idea of it, were left in the air. I could appreciate its vigour but not its tactics, and gained no understanding of Captain Morda's campaign, when I saw some fifty runners on either side race and watched frequent replacements of men as less favoured combinations in the course of the game. With the interesting spectacle the Conference concluded and having accepted an invitation from General and Mrs. Wilson to spend the week-end with them, we returned to Helldorf's house.

Continental Express arrived at the Sixty-sixth Street, New York City, on October 2, 1917, October 6 to October 10.

I landed in New York on the afternoon of Friday, September 28, reaching my hotel about 9 o'clock. A little later I got into telephone-conversation with Commander Blackledge, M. C. U. S. N., P. H., who arranged to call for me at the hotel at 8 o'clock. One supper together did, having arrived a day later, we arranged my plan of campaign, which I may at once say that, with minor additions or omissions I carried out practically as intended. The same evening we took a midnight rail train to hospital, or nursing home for private persons, the Murray Hill Hospital. This a small hospital of only beds, is situated on the upper few stories of a tall building in the city, an extremely convenient institution, very complete with its suite of operating, laboratory, x-ray rooms, etc. Each patient has a separate room, with bathroom, laboratory and x-ray attached. We rented together a number of bed-rooms and the station truck we rented the hospital while Dr. Blackledge ran, other cases.

On Saturday, September 29, at 9 a. m. I had the opportunity of seeing Dr. Blackledge's 'office', as so we should say "consulting room", the "office" is a complete set of chambers comprising waiting room, consulting room, room for the examination of patients, laboratory, x-ray room, and treatment room. Perhaps some of our eminent surgeons have the same facilities but I have yet to see them. Dr. Blackledge speaks of a malignant disease, of which he has had records at this WOOD personal cases extending over a period of thirty years. After that I proceeded to the General office, where I made all arrangements for my return journey, and in the afternoon travelled by train to Washington, arriving there at 8:30 p. m.

Sunday, September 30, I spent in seeing Washington. I was particularly fortunate in making the acquaintance of a Dr. and Mrs. Moore of Philadelphia, who were also here on sight-seeing. They drove me about in their car, and together we visited various places of interest, including the Smithsonian Institute, which corresponds to the British Museum, the Washington and Lincoln Memorials and several other buildings, from the top of the Washington Monument a magnificent panorama view of the city and surrounding country is obtained.

Monday, October 1.—In the morning I called upon the heads of the three medical services, Rear Admiral E. R. Starr, Surgeon-General of the Naval Medical Service, Surgeon-General M. W. Ireland of the Army, and Surgeon-General H. S. Cummings of the Public Health Service. General Ireland was unfortunately away and I did not make his acquaintance until several days later. I met, however, his Deputy, Brigadier-General F. S. Knott. These officers were nice and all extremely kind and placed every facility in my way for visiting the establishments within their jurisdiction. Admiral Starr introduced me to his

English Naval Service, M.C., U.S.N., and assistant commander, United States Coast Guard, has been accompanying me on my inspection. He is the first among the eight to go, but all leaving it to the end of the second voyage. From March 28, Port Darwin, South, N.S. I am leaving for Newcastle, April 4, and to visit the Naval Medical School and the Naval Hospital and to the Institute of Hygiene and Public Health.

The Naval Medical School is in charge of Captain C. E. Hoyle, M.C., D.S.O., who arrived to and took me around the school, which is a well-equipped and adequate establishment with excellent class rooms, lecture theatre, classrooms, library, and so forth. There are separate laboratories for work in zoology, histology, chemistry, bacteriology and physiology, and a model operating theatre where operations surgery is well-aided on the cadaver.

Naval surgeons on duty are on a scale directed down to sea service, and students find courses in a few months, up to the medical school. Graduates come below later on their career and corresponds to the present situation. Considerable attention is paid to venereal diseases, and dermatology is taught as a separate subject. I was informed that the disease cases group is watched in all the naval hospitals, and a knowledge of its medical application is regarded as of extreme importance. It interested me to know that medical officers do alternately two years at sea and two years in shore appointments. I had the pleasure of speaking to a number of officers and professors of the school, and at Captain Hoyle's request gave a contribution to the batch of surgeons under instruction.

It is much interested in the visiting department of the school, which is in charge of Commander Stuart, U.S.N., from the Agassiz for the Surgeon General's annual report on the health of the Navy are correlated with medical records of all cases of illness ashore and about sea legs, and I was intrigued by the simplicity of the means of daily health charts, which consist of large boards of squared paper, provided on a vertical upright stand in the various classes of diseases are indicated by pins of different colors, separate charts being used for each epidemic or establishment. In this manner a graphic representation of the state of health of each ship establishment is constantly available and may be read at a glance by anyone concerned of the system. The yearly statistics are made up by an ingenious color-feeding machine, which Dr. Stuart presented to show me on the following day.

We then proceeded to the adjacent naval hospital, being received by surgeon Hugh, M.C., U.S.N., the medical officer in charge, who started us around. The hospital contains some 250 beds and is built on a day side on the previous system with a covered administration block on which offices, wards, etc. are accommodated. The wards are admirable, and there is no lack of single and double rooms for various observations cases. The hospital has its own research laboratories quite apart from those of the

about the x-ray, electro-physiologic and hydrotherapeutic departments. Every generously equipped and very much up-to-date and the walls lined up in connection with the electro-cardiograph. There is also a department of occupational therapy where weaving, basket-making and other creative occupations are taught and practiced. This department is in charge of a lady and civil servants, and is believed to be a great aid to convalescence, especially in orthopedic work, and fully to repay the time and money spent upon it. I have started to mention that the works are also noted for brilliant reception, each separate bed being supplied with a pair of slippers. Among other things, I learned that all our visitors are accepted as guests in the naval hospital irrespective of whether they had or didn't participate in the war or not. The hospital kitchens are cozy, clean and efficient. Convalescent patients dine together in a large hall and all possible articles of diet, such as cereals, fish, milk, vegetables, etc., are served in separate refrigerating cabinets.

From the hospital we drove to the Institute of Hygiene of the Department of Public Health, being met there by Dr Dyer, Assistant Director of the Institute who explained that this is the central research institute for all the forces, and although exercising no jurisdiction over the public health authorities of the various States, yet undertakes any research work required by our interested hosts, gives advice and makes suggestions. Dr Dyer then showed us around the building containing not to a number of the heads of departments. I was especially interested in the work of Dr Frazer, who is investigating the viral organisms, Dr Robert M. Johnson, and the organism causing typhus. This latter disease is prevalent in Japan and has only recently been discovered in America. Before now found to be very widespread and in its endemic is eastern Asia. The infection is extremely violent when introduced overseas or handled and in other ways as less than one of the Chinese servants, including himself, have contracted the disease within the last few years. It also has infection in human beings is also found to be very prevalent in the country. Dr E. F. Mowry told me of his researches into the virus of a wild form of typhus which is endemic on the Mexican border and in Florida. He believes the infection to be spread by ticks being ticks that the hosts, thus increasing the suspicion that it was disease other than typhus may be on the loose. The institute is a fine building, the research laboratory being unimpaired to with being attached its own particular animal house. Investigations are especially being carried out on a very large scale.

In the evening I paid a delayed call at the Dutch Embassy, the Ambassadors was still in winter quarters, but I conversed with our two Naval Attaches, Captain Barker, R.N., and Engineer Commander Hinton, R.N.

Tuesday October 2 Commander Agnew calling for me in his car at 9 a.m., we proceeded to the Army Medical Centre situated some miles outside the city. The "Centre" comprises the Walter Reed General

Hospital, the Army Medical School, and the Red Cross International Establishment. It consisted in large and small grounds of some 130 acres, and presents an imposing appearance.

The Walter Reed General Hospital is a large hospital of 1,000 beds, built on the partition system in three lateral blocks. It was erected in memory of General Walter Reed, M.C., U.S.A., a pioneer in the field of tropical medicine and especially of yellow fever. The hospital serves not only active service medical officers but also veterans of the world war and the wives and dependents of both services. Doubling operations are still being carried out in the same time as the demolition of some temporary structures put up during the war. The nursing staff, medical officers, and various auxiliary departments still occupy these temporary quarters, but the whole is expected to be complete in less or these years. We entered the central administrative block and were received by Major Hume, M.C., U.S.A., who had detailed Captain Stedman to show us round. The whole ground floor of this block is devoted to the offices, with receiving rooms at one end and dressing rooms at the other. Above are the staff officers' quarters. The blocks are connected by covered corridors. The wards are admirable, each ward containing not more than fifteen to twenty beds and adjacent to each ward are a series of one or seven single or double rooms. Bathrooms and lavatories are numerous and well appointed, and the sanitary arrangements correspondingly good.

Convalescent patients were together in a large white-tiled hall capable of seating at least 1,000 patients. The tables are made of galvanized metal with black white tops made of some composition which I find incongruous and on which my pencil was unable to scribble on. It is apparently as detachable and very easily kept clean, as best I did not care scratch or even open a single table. The seats are round tops of the same white material hinged to the legs of the table, swinging outwards when in use and closing beneath the table when not required. The whole place is designed to measure fifteen, it was spotless and neatly maintained in that condition. Nearly all the hospital buildings, including a big gym, and there are the usual standardly constructed washing up, kitchen, public kitchen, bread kitchen, &c.

The hospital library is a large apartment with thousands of volumes in well-arranged shelves. Encyclopaedia, atlases and working tables are scattered about. Medical officers have a special corner of their own, made private by bookshelves arranged four square and well stocked with medical books and current medical literature. All classes of patients have free use of the rest of the library, while bed-patients are supplied by trolleys containing an assortment of books which are wheeled round to the beds. The library is an annex of treatment's main, corresponding to our medical school hospital.

The operating theatre, a big roomy research laboratories and various therapeutic departments are absolutely well equipped, while, as in the

Naval Hospital the wards are used for various reception and also the medical wards in connection with the electro radiograph.

After this we visited the Red Cross building. Commander Agnew, in addition to his other duties, acts as liaison officer between the Red Cross and the Army and Navy Medical Services. This is a handsome office, the main portion of which is a large reception room with stage and gallery, furnished with small tables and comfortable water chairs. It is used for lectures, services, drama shows, and as a patient's lounge. Close by is a large swimming pool.

We next visited the Army Medical School, a vast oblong three storied building, while the Commandant Colonel R. C. Foley, M.C., U.S.A., received us and showed us round. Below are officers and class rooms, and various instruction rooms. In the ophthalmic department I noted a series of twenty radiological apparatus for teaching ophthalmology and refractions and in the X-ray department the complete disassembled parts of the apparatus for the thorough grounding of the pupil. Next come plain radiating X-ray, and so on. Upstairs are the laboratories and research works, chemical, radiology, histological and physical. Above these again are the animal rooms—rooms for making and storing sera—these latter being refrigerating chambers—rooms for culture making vaccines, etc. All the army and navy vaccines are made here, and I was interested to watch the preparation of a batch of typhoid vaccine, mixed typhoid and paratyphoid (type A and B type used). These were stirred in a couple hours growth were employed in inoculating tubes in a special room which is kept at an unusually high temperature and sealed. The room is steam disinfected both before and after use and the operators bathed in disinfectant before beginning work. Observation is kept on the viruses through the glass panel of the door. This is necessary, as occasionally the workers collapse from the excessive heat.

Before leaving I was introduced to General Kennedy, M.C., U.S.A., who is in command of the whole' Center. He told me the story of the construction and showed me the completed plans which include, besides what I have already mentioned, both a veterinary and dental college.

We finished with Captain Nichols, D.N., the British Naval Attache, and after lunch visited the Navy Medical Department, where Dr. Stuart, in fulfillment of his promise made on the preceding day, showed me the interesting machine mentioned above, explained its use, and demonstrated its extreme simplicity and efficiency. It is operated by a couple of women and in an incredibly short time produces results which otherwise would take the doctor a many days. At the department I also obtained samples of the "perforating pencil" as used in the navy and army. The machines are very similar to our own but the substance is of rubber and is not affected by the drug, it is manufactured in the Brooklyn Medical Supply Depot. At 4:00 p.m. I returned for Baltimore, where I arrived in time for dinner.

After breakfast, Monday, 4. I went to the breakfast I got in touch by telephone with Dr. C. H. Finney, the senior surgeon of the Johns Hopkins Hospital, who volunteered to be with me about 10 o'clock. We drove straight to the hospital, where he assigned me to the care of Dr. Howell. Directed to the Institute of Hygiene of the University and of Dr. D. Levine, a senior surgeon in the hospital. With these officers I spent a very interesting day, toward Howell taking me over the institute and Dr. Doyle the hospital.

The Institute of Hygiene is a Rockefeller foundation, which was begun in 1905 but has only recently been completed. The first director to be appointed was Dr. Welch a bacteriologist of world-wide reputation. He has been succeeded by Dr. Howell, who is himself a man of great scientific and charm. It is a magnificent place containing clean rooms, lecture rooms and research rooms for every branch of scientific medicine: bacteriology, laboratory renal statistics, chemical hygiene, epidemiology, immunology, serology, physiology, hygiene, physiology, chemistry, anatomy, etc. I talked to a number of enthusiastic patients, and was intrigued by the palpable interest of students. All workers co-operate with the building and the great opportunities it gives are obviously, undoubtedly, destined to be second to none in the scientific world. I looked on the hospital buildings, my host being Dr. Levine, where I met many of the hospital staff, amongst whom I had the pleasure of meeting with Finney's chief assistant who in 1903, whilst I was serving on the Naval Hospital Plymouth sent me our first supplies of that very rare feature serum for treatment of cases of non-agglutinated infection ("Finney's prepared serum"). After lunch Dr. Levine showed me round the great hospital. Little need be said of this, for it might indeed be any great hospital in any great city. I was impressed, however, by the completeness of the hospital equipment and by the apparent interest of the patients. I considered too, that the colour line was sharply drawn, white and black, always occupying separate wards.

At 4.15 p.m. Dr. Finney picked me up and took me to see the Baltimore Memorial Hospital of which he is governor and chief surgeon. This hospital is the last word in modern hospital construction. Beautifully situated on the outskirts of the city it is perhaps the most compact and elegant modernised hospital that I have hitherto seen. All the floors of the wards, corridors etc are of a rather expensive and there is a remarkable absence of "hospital odour" and more generally. I was very much struck also with the number of the place and an atmosphere of happy expectancy about the patients, in all and all were aware that they were on the high road to recovery. Finally this is largely due to the personality of Dr. Finney himself, who seems to radiate an air of confidence in each individual patient, to many of whom he made me known. In coming with me there came in a most happy manner. In the evening I dined with Dr. Finney in family and much enjoyed this my first evening in a real American home.

October 1901. Minutes of the Conference. (see Part I of this report.)

October 7. I spent Saturday evening and Sunday as the guest of Edward M. H. Widmer and Mrs. Widmer in their home at Bedford, a suburb of Baltimore, Sunday being devoted to golf and a drive in the surrounding country. Dr. Widmer is an eminent ophthalmologic surgeon and director of the Widmer Institute of the Johns Hopkins University. He is connected with the American Ophthalmologic Society and did much valuable work at conference with various members.

At 8.45 p.m. on Sunday I embarked on the night express for Boston arriving in that city at 8 a.m. on Monday October 8, where I was immediately on the St. Nicholas Club, then having been arranged for me by Dr. Goodbridge. Here I found arrangements to attend the Conference of the American College of Surgeons which was to commence on that day as well as arrangements to the hospitals in connection therewith. Unfortunately I was unable to accept any of them as my plans had already been laid, and it would have been difficult to postpone my appointments in New York. It was a disappointment as the conference was of considerable importance and was to continue throughout the week. After a bath and breakfast, Dr. T. G. Cornea, Chairman of the Committee of the Conference called upon me, bringing with him Colonel J. V. Baker, M.C., U.S.A., R.H. who was to act as my guide in Boston. In the office I was introduced, having previously made his acquaintance in Baltimore, and after some conversation he took me under his wing on a voyage of discovery. We first visited the Harvard Medical College, a fine group of buildings surrounded by three hospitals. The Peter Bent Brigham, The Boston Hospital, and the Massachusetts General Hospital. The interest in the grand scale, too large to obtain a correct picture of so in short a visit. In each communication rather details rather, perhaps more impressive in their intensity than the long rows of lecture rooms, dissecting rooms, libraries and laboratory. Among such I have a vivid recollection of a most useful and efficient little microscope kept in use in the histological and immunological laboratories. This consisted of a 12 or 15 x p. daylight lamp, enclosed in an oblong tin box with a cotton lens and movable ground glass front exactly the height of the microscope stage. It was a side view the distance a very design made 30 cent and in a considerable economy which some microscope has on use.

After leaving the school we went next door to the Peter Bent Brigham Hospital, where I stopped meeting Harvey Cushing. This hospital is a modern building, very up to date and efficient. The operating theater unique, of which there appeared to be about a dozen, set of wood and not painted iron. They have single row student galleries, and in front of the gallery and a sloping glass screen which efficiently prevents the spectators from catching or throwing up to the patient, whilst at the same time allows him to be close enough to obtain a reasonably clear view of the operations on hand.

From the hospital we drove to Letchford, where all killed and maimed the war were laid to rest. Harvard is the focus of American sentiment and has the students, too. The great quadrangle with grassy lawns and green trees, the red brick of the buildings, which are of no great height, altogether giving a pleasant feeling of homeliness which is often absent from the grand masses of much of this part of country. We walked into the University Athletic Arena, which is a huge stadium after the style of Wembley. I am told that it has seating accommodation for over 80,000 spectators, and as the games enjoy an enormous popularity, the gate money renders Harvard one of the wealthiest athletic clubs in the world. After lunch at the St Botolph Club, we visited the Naval Hospital, where we were received by the executive officer, Captain Hathaway, M.C., U.S.N. This hospital has about 300 beds, and is built on rising ground overlooking the river. It is in the most a brick building, built on the pavilion system, but there are several concrete semi-temporary blocks, which were put up during the war. Here again the most striking feature is the complete equipment of what you might call the necessary departments of a hospital of practically as high a class as what I had already seen at the Washington hospital.

After a busy and enjoyable day I said farewell to Colonel Butler and as I sat isolated on the Cape Cod coast for New York. The day before when hours and so well worth while, the steamer being very much more comfortable than the train, and one gets a wonderful view of Boston Harbour at sunset. During early, the passengers of New York's city company as we rounded Manhattan Island in a splendid motor launch. I arrived in New York at 8 a.m. on Tuesday October 9, driving straight to the drug and Vary Club, to which Dr. Hensleigh had asked me to be elected a temporary member. I bathed, had breakfast, and met Dr. Hensleigh at his office at 10 a.m. Here, also, was Colonel Cunningham of the Tenth Army, the Italian delegate at the Baltimore Conference. Under the guidance of Dr. Hensleigh's research secretary, Miss Yarrowson, we at last saw a tour, visiting in turn the Rockefeller Institute, the Academy of Medicine and the New Medical Center. Space will not allow a description of these establishments, even were it possible for me to do so. The latter day-tour was I had of them left me an attachment at the undoubted success of the city. Money has been lavished on buildings and equipment, and one sees the opportunities of the physicians who are now entering upon our great problems in the city and such surroundings. The Medical Centre is the most recently built of the great city hospitals and is an amalgamation of those great hospitals of which the Presbyterian Hospital is the core. It is a group of modern buildings situated not far from the heart of the Midtown. Dr. Hensleigh and Dr. Parsons took us round and showed evident satisfaction in pointing out the many improvements and improvements. The matter of operating theatres are upon the fourth floor, and above this again is a floor devoted to the interests and experiments

residents and visitors. I should feel on a description of this wonderful hospital had I been able to spend even a week in exploration, but fortunately was able to obtain a limited working knowledge in such features.

At 1.30 pm we met Densbridge at the 'Delta Optical Clinic, where we went to be the guests of Dr. James at luncheon. This clinic illustrates an interesting phase in New York life. It is one of a number of "fraternizing" clinics of which there are some twenty five occupying the same vast building. The clinic holds weekly meetings, the members being graduates of the universities and come from all walks of life. The center of the day was a well known New York baronet, and there were several other speakers made, including a helpful effort by myself. I was greatly struck by the good fellowship displayed and by the extremely friendly tone adopted towards the country.

After lunch we drove to Brooklyn where we visited the naval hospital, and were shown round by Captain Coffe and Director of the Naval Medical Service. This hospital is larger than either of the naval hospitals at Washington and Boston, but the service in use is due solely to a couple of 180 bed wards built during the war, and, as Captain Coffe says, they cannot be considered an improvement as they are far too sparsely and difficult to administer. The rest of the hospital is, however, most admirable and of another type to the hospital already described. After leaving the hospital we visited the Brooklyn Naval Medical Supply Depot, a place comparable to Depotford, here we viewed not the building and consideration of drugs both chemical and biological, and from whence are sent all medical and surgical stores for hospitals and the marine fleet.

This evening I dined with Dr and Mrs Densbridge and after dinner they drove me round the city. New York by night is rather amazing. Broadway - nicknamed the "Great White Way" - is ablaze with city signs and all manner of twinkling electric advertisement devices and the streets are lit up to a brilliant London is a revelation in the present time, certainly, but New York 'lights' are more and must be seen to be believed.

Wednesday, October 11. At 9 am I met Densbridge and Cartwright at the office of the former and we at once drove to the Manning Hall Hospital which I had seen on my previous visit to New York. After seeing a variety of cases we entered the ward to the Manhattan State Hospital for the Insane, where Dr. Harwood, the medical superintendent, made us welcome. This hospital is an enormous establishment composed of the whole of Ward Island on the East River. On the day of our visit the present numbered 1,300, and there is a staff of approximately 1,000 of whom forty are doctors. There are separate hospitals for men and women, one for men, the other for women, where all cases are kept as long as they are thoroughly unimproved before being drafted to their special wards. The case management is the most thorough imaginable, and the degree of such

take the voluminous documents, stenographic take all notes, which are subsequently typed for us. Dr. Harwood explained doctors are too valuable to waste their time in writing their own notes. Again, there are two separate hospitals for patients on parole and those about to be discharged. There are almost seventy, run by the patients themselves, under supervision and are a model of order and cleanliness. The general workshop P.I. I visited, and one can well imagine the model of almost material contained in this great establishment. There is a big lecture theatre in two rooms as well as a temple of sciences, besides the superintendent's office, other readings, recreation grounds, farm etc. Dr. Harwood mentioned too that the padded cell and straight jacket have been entirely abolished in the institution, and that a very satisfactory solution is found in the 'hot bath' which is now employed in all violent cases. I saw two models in an depressive case undergoing this form of treatment, and a satisfactory result most reasonable and humane. Cases of C.P.I. are treated here, it is curable and makes education and considerable progress has been achieved in the arrest of and in the actual cure of this disease. A great feature of the institution are the workshops for occupational therapy, the patients to hold work all patients are taught, as an occupation is made to think them some type of handicraft. There are shops for weaving, printing, and carpentry metal work leather work, pottery basket work, maintenance etc. Often these shops are directed by women, and some of the men know I can estimate a very high standard. The competitive spirit is encouraged, and in fact at the shop I visited a board giving the order of quality for individual patient's work.

Dr. Harwood is an enthusiastic, alert, and one felt that he is working on his life time. I was tremendously interested and impressed by all I saw, and felt that this is a real and sincere effort to treat insanity as a different disease, and speaks well for the State which follows such a course. Dr. Harwood is anxious to move out into the country, as he believes the patient can work closely in touch with nature and therefore is sympathetic with the striking nature of the patient's handicraft. These modern methods of surrounding without room for expansion, among in all fields etc. and this is bound to be detrimental. In addition to the medical and staff of the hospital there is a large honorary assisting staff of which Dr. Harwood is a member. These others visit the hospital weekly and advise on purely medical and surgical treatment, operating when required. Before leaving we had lunch with Dr. and Mrs. Harwood in their residence and after a most interesting and instructive forenoon returned to New York about 3.30 pm. giving me ample time to pack my baggage as I had deposited my board the 21. Arrangements before attending in France to the French League Club, given by Harwood, where I met the pleasure of reviewing many acquaintanceships and of meeting a number of distinguished officers of the three Services. Afterwards as I left there we attended a musical comedy which was very appreciated. At

colony at Sandbridge doing a hard business. I was fortunate in finding him I wish great regret I had foreseen an one who had no private connections to making my visit to the United States as pleasant and convenient.

As far as I personally was concerned my visit suffered from only one drawback, namely that it was all too short. I saw and heard so much that it was scarcely possible to take it all in, or to form all the business that was then for the reading. I hope however that I have obtained some slight insight into the work done and doing by our professional brethren across the water. In visiting three naval and one military hospitals I am enabled to estimate the efficiency of both medical services, and am not without many of the hints and work which these services are able to obtain when they are called subsidiary equipment. Thus, in all three establish-ments the electro-metaphor is a new gas now, while in the position of laboratory and of the various therapeutic departments our own hospitals lag some way behind.

Finally, I would add a word of appreciation for the great kindness and courtesy with which I was received on all hands. I was never for one moment allowed to feel myself a stranger, but a friend amongst friends. My thanks are specially due to Commander W. S. Sandbridge M.D., U.S.N., R.N., to the Heads of the three great Medical Services, Rear Admiral Sims, General Ireland and General Cummings, to General Whelan, Dr. Tupper, Commander Agnew, Colonel Young, Major House and others too numerous to mention. His year short as it was, I leave upon me a lasting impression and I am deeply grateful to our Medical Director General for recommending me to so sympathetic a host.

A SHORT ACCOUNT OF THE ROYAL NAVAL MEDICAL SERVICE

By JAMES PEARCE, F.R.S. & F.R.C.S.

It is impossible to assign any definite date when persons possessing the Art of Physick were first carried in English ships of war. The earliest distinctly known date when medical officers were borne on ships at sea, occurred in the reign of Henry VIII (A.D. 1512). It is possibly however that medical men served in the King's ships prior to that date under the Company of Barber and Surgeons, who had received their Charter (1482) and who were incorporated by the Act of Ed of Henry VIII, certainly, I supposed, before surgeons for duty on the fleet during the reign of Queen Elizabeth. May we not therefore infer that they did so at an earlier date? Amongst the privileges of the Company of Barber Surgeons, which was first accepted body for the entry of surgeons, was

¹ Statute for the Company of the "Apollon soldiers' bridge" the official sign of the Incorporated Company of Soldiers, Sailors and Marines.

that of preventing unauthorised persons from acting as surgeons on the fleet and the superintendence of surgeons' hospitals afloat, which the latter had to supply at their own expense. The supply of drugs &c. was a monopoly vested in the old Druggists and a very profitable one it proved for them. It can be readily realised that such a method of supply was a source of contention to the medical officers, who were undoubtedly complaining that not only were they overcharged for drugs, &c., but were supplied with articles of inferior quality. This supply of drugs, &c. was abolished by the Crown in 1809 and since that date official supplies to the Royal Medical Service both afloat and ashore, have continued.

In the seventeenth century the customary method of entering surgeons was for the Master and Warden of the Company of Barber Surgeons to present to many surgeons and surgeons' mates to were required for the service. Especially they were prone that proved by the Privy Council, when this then authority was vested in them by the Lord High Admiral. The medical officers' duties in those long ago days must have been varied and multifarious, for otherwise there appears to be no reason for the order made by King James I. that these men duty was to attend the sick and cure the wounded! The medical officer also appears to have been responsible for duty with the naval and military forces. Some carried very lengthy journals, for we read of one James Foye who served as an apprentice on the set of medicine from the age of 22 years, through various grades including service in my Lord Bute's Regiment—the many years in full authority was given for "any able physicians" to be attached to the fleet up to each squadron. The College of Physicians was requested to nominate two such men at an allowance of £1 per diem, and further, certain physicians were allowed in the several ports, Rochester, Plymouth, Deal and Portsmouth, at a salary of £250 per annum. In the same year a warrant was obtained for a house at Greenwich to be a hospital for women, which in the previous year masters had been given to build a similar hospital in Plymouth.

The Navy Board undertook the appointing of surgeons and surgeons' mates in 1697, such appointments being conditional upon the candidates having passed an examination at the Surgeons' Hall. In 1708 a regular examination in Physics, held by the Physicians of the fleet and Fleet Board was imposed upon surgeons before they received their masters from the Navy Board. The fleet and Fleet Board ceased in 1718 when their various duties were taken over by the Physicians of Greenwich Hospital. The official who then became responsible for the regulation of the surgeons' dress, and issued the prices of drugs at the Apothecaries' Hall. In conjunction with the Governors of the Surgeons' Company, he further had the duty of denuding the surgeons' journals at the end of a voyage. It is pertinent to say that medical officers to-day keep a journal of all matters of medical and hygienic interest, such journals being rendered annually. The old orders regarding journals dated 1794, read as follows:

"That all extraordinary cases in surgery, described in the sea surgeon's journal, shall be delivered to the Governor of the Company shall be noted by the Governor and all remarkable cases that should happen at home or abroad be reported, whether they should be published and in what manner."

Five persons within the great natural Lind Velson took in the medical branch for he complained bitterly that medical officers did not seem to the encouragement they deserved, and that consequently the best type of man was lost to the service. It is quite possible that his writings caused great weight in the reformation of the Naval Medical Service which took place in 1810, when, by an Order in Council the service was placed on an organized basis, the wearing of a distinctive uniform, Admiralty responsibility for the supply of medicines, &c., and the vesting of responsibility for the efficiency of the medical department on boats and ships together with considerations of relative ranks were instituted. It is of interest but not a generally known fact that the Fleet Admiral was an enthusiastic promoter in surgical surgery. It is recorded that at the time he had his arm amputated he complained very strongly that the cold steel of the surgeon's hand caused intense pain. He therefore recommended orders that medical officers were to place all knives in very hot or boiling water prior to use.

To conclude it may therefore be accepted that the sea-side Order in Council of 1810 laid the foundation of the Naval Medical Service seeing that it prescribed the regulations on which our service has been definitely organized and has gone to some expense to keep fully abreast in the advance of medical science.

ADMINISTRATION.—The administration of the naval medical service in 1810 seems was noted in the Navy Board during peace and as stated before the medical officers received their warrants from the Board. It was however a supreme Board of Commissioners for both land and sea would be set up occasionally in Town Hall. These Commissioners regularly received their warrant from the Privy Council and later from the Lord High Admiral (or The Lord, Commissioner of the Admiralty).

The Commissioners of 1841, appointed by King Charles II. during the Dutch Wars, had power to place wounded seamen in civil hospitals, to arrange arrangements to carry men for relief from the Clinician Hospital, and to distribute charity to widows, orphans, pensioners. One of the Commissioners was directed to proceed to the Ports where a naval engagement to make arrangements for the reception of wounded men. Finding that Commissioners were charged with the maintenance of prisoners of war. These accounts were closed by the Navy Board. In 1810 one of the Commissioners went with the Fleet to the Mediterranean to make a personal investigation as to the conditions, and such was the interest taken by these Commissioners that a hospital ship was fitted out for the West Indies. That some such investigation was necessary is laid

confined by a petition to the Earl of Rochester, written by Dr William Harvey in 1711. His description of the hospital, in which the wounded were accommodated, is most depressing, or to use his own words, "Universal grief being born with losses and attachment, approached by various afflictions and as dark as a dungeon." He concluded by yet less optimistically that the men should die than that any sick or wounded person should recover.

Black and East India was then located on Tower Hill during the War of the American Revolution. After the Declaration of Peace, however, House was back to accommodate subordinate Naval Hospitals, i.e., the French Revolution (1793-1803) then Board retained its quarters at Somerset House. The whole administration was reorganised during the Napoleonic War (1803-1815) and the Sick and East Board was merged into the Transport Board, which also dealt with prisoners of war. One of the Commissioners of the Transport Board was Dr John Hunter and under him were two Inspectors of Hospitals (naval medical officers): Dr Wrenham Head. Their office was at Westminster. Peace being declared in 1815 the Transport Board was abolished and the medical service was transferred to the Commissioners of Victualling, i.e., at Somerset House. There it continued until the Victualling Board was abolished by William IV in 1841. At that date Sir William Burnett was one of the Commissioners of the Victualling Board, and on the subsequent reorganisation he became the sole head of the Naval Medical Service with the title of Physician-General of the Navy. This title was altered to Inspector-General Naval Hospitals and Fleets in 1846 and in 1849 to Director-General of the Medical Department, this title so now being altered to the Medical Director-General of the Navy in 1858. In 1873 the Medical Department left Somerset House in accordance with the general decision to centralise all Admiralty Departments.

The duties of the Medical Director-General of the Navy, allowing for the change wrought by time and the advance of science, have little altered since the middle of the nineteenth century. This officer, who now holds the rank of Surgeon Vice-Admiral, is responsible to the Board of Admiralty for the efficiency of the naval medical service. He superintends all personnel and administrative details of naval medical establishments and the practice of medical officers. The work of his department also includes questions regarding the naval and civilian personnel of the naval medical service, the supply and expediting of drugs, instruments, etc., accessories arising from sickbays and clinics for compensation, the hygiene and sanitation of ships, hospitals and establishments, preparation of statistics for the medical rate, the maintenance of the nursing and sick berth and nursing reserve forces, publication of medical statistics of the Navy, etc.

The Naval Hospitals, according to their size and importance, are in the charge of Surgeon Rear-Admirals, Surgeon-Captains and Surgeon-Commanders respectively.

For Professional Compensation the Surgeon is to be considered entitled to company with the chaplain, the surgeon used to collect a gross 10 per cent when his ship paid off. This was reduced at a later date to 5 per cent on the rate of surgeons. Payment by such a method was altered on the recommendations of the Commissioners of Public Accounts. These Commissioners stated: "That the Admiralty must be acquainted with the incomes of chaplains and surgeons of every ship, of whatever rate in the Navy, without they know what a proper and adequate compensation for their several services. What salaries then, arose out of allowing each of them, instead of these deductions: one stated, serious, actual salary, according to his station, payable out of the fund of wages." In order of paying the chaplains and surgeons appear to us to be practicable they ought in our opinion to be calculated in the place of the modes in use.

Another deduction from the constant pay, viz., the payable to the surgeon for every vessel sent, they suggested should be abolished. The Commissioners stated: "We think the surgeon should attend to every disease of the members of public expense, and be allowed a certain compensation adequate to his skill and trouble. This salary was treated as a perquisite and from its original amount of five a year had been reduced to five a year by the Admiralty Order of 1766. The Commissioners recommendations were not adopted in their entirety and we find during the French Revolutionary War the pay of a surgeon was 40 per month, plus 20 per cent of the whole ships company plus 25 per cent for every 100 men in fact of vessels. In addition surgeons received Quota Annua Fidei Offi. This was a sum of money, varying with the rate of the ship, towards the equipment of the surgeon's chest. After the Declaration of Peace in 1815 the arrangements for the improvement in the pay and status of all officers both naval and military, culminated in a Commission (1816) provided over by the Duke of Wellington. The Naval Medical Service was such that the Commission reported: "The conditions and prospects of the class of public servants are not such as to afford encouragement to meritorious individuals who are engaged in that department. Various recommendations for the improvement of the service were promulgated in consequence and a further Commission in 1836 again improved the conditions of service.

Although somewhat belated, arising out of the experience of the Crimean War, it was decided in 1871 that all surgeons on duty should first attend the British Army Medical School in order to become versed in military surgery, the transport of the sick, and wounded to become familiar with the use of the microscope and to glean some "modern" views on the then little known subject—Typhoid Malaria. At a later date this service was transferred to the Royal Naval Hospital, Haslar, which establishment continues to be the Home Base of the Naval Medical Service. From that time onwards various committees have been appointed by authority to

require the conditions of the service, the most important of which have been the Dunsford Committee of 1899, the Jarrow History Committee of 1919 and the Fisher Committee appointed in 1920. Space does not allow of a full discussion of all these findings, and the recommendations adopted. A few of the outstanding features must therefore suffice, and among the most important are (1) The institution of the Royal Naval Medical School at Greenwich. This has been an invaluable boon to our service. Here courses in bacteriology, pathology and public health are available. Its well-equipped laboratories undertake the examination of all types of venereal diseases of our food, water, etc. are carried out, and, besides, an close proximity to London means officers desirous for service, obtaining magnificent clinical experience in medicine, surgery and tropical medicine at the various London hospitals. A Professor of Hygiene and a Professor of Pathology are here at this College, the former also acting as Director of Medical Studies. (2) Bacterioid pneumonia is now obtainable in the experiments for pneumonia. (3) The introduction of specialists in all branches of our profession, e.g., surgery, medicine, pathology, bacteriology, venereal diseases, ophthalmology, anaesthetics, radiology, naval hygiene, etc. The specialists in the latter subject are designated Naval Health Officers. Five are assigned at the Home Command and in the Mediterranean, and not a few others on all matters of hygiene in the command where they are sent out. The introduction of specialists in so many branches of our profession found the naval medical officer ready to avail himself of accepting responsibility on such various points. Thus arose the splendid clinical work of which we are probably proud in the present day. All these specialists receive a special allowance over and above the ordinary rates of pay. (4) The introduction of Professors of Naval Surgery and Naval Medicine and (5) the introduction of Senior Officers' Courses under the professors previously mentioned.

It can safely be said that no naval medical officer lacks opportunities for work, neither does he for play. Our hospitals are magnificently equipped on the most modern lines, and there is no lack of clinical material to satisfy the most ardent. On the other hand preventive medicine is practised assiduously. Against this what might be termed a picture of war, no other sphere in his efforts such opportunity for travel under the best of conditions, and the enjoyment in sport of all kinds.

All things except the smallest carry a medical officer, the larger ones on wing too. When frequently being detached on isolated service, the medical officer—in addition to his ordinary medical and surgical duty—has to fulfil the function of medical officer of health, and consequently has to advise the commanding officer on all questions relating to the protection of the health of the crew, and suggest measures necessary for that purpose. Needless to say, he is able to avail himself of the advice and services of the Naval Health Officers whenever obtainable.

This reader who is interested in our strength earlier, past, and present, will find them on the following table:—

APPROXIMATE PAYMENTS FOR OUR SERVICE FOR				
Year	Number	Through	Actual pay	Rate of increase
Surgeon-General's office	—	1897	\$1,000	—
Surgeon-General's office	—	1900	\$1,000	—
Surgeon-General's office	—	1903	\$1,000	—
Surgeon-General's office	—	1906	\$1,000	—
Surgeon-General's office	—	1909	\$1,000	—
Surgeon-General's office	—	1912	\$1,000	—
Surgeon-General's office	—	1915	\$1,000	—
Surgeon-General's office	—	1918	\$1,000	—
Surgeon-General's office	—	1921	\$1,000	—
Surgeon-General's office	—	1924	\$1,000	—
Surgeon-General's office	—	1927	\$1,000	—
Surgeon-General's office	—	1930	\$1,000	—
Surgeon-General's office	—	1933	\$1,000	—
Surgeon-General's office	—	1936	\$1,000	—
Surgeon-General's office	—	1939	\$1,000	—
Surgeon-General's office	—	1942	\$1,000	—
Surgeon-General's office	—	1945	\$1,000	—
Surgeon-General's office	—	1948	\$1,000	—
Surgeon-General's office	—	1951	\$1,000	—
Surgeon-General's office	—	1954	\$1,000	—
Surgeon-General's office	—	1957	\$1,000	—
Surgeon-General's office	—	1960	\$1,000	—
Surgeon-General's office	—	1963	\$1,000	—
Surgeon-General's office	—	1966	\$1,000	—
Surgeon-General's office	—	1969	\$1,000	—
Surgeon-General's office	—	1972	\$1,000	—
Surgeon-General's office	—	1975	\$1,000	—
Surgeon-General's office	—	1978	\$1,000	—
Surgeon-General's office	—	1981	\$1,000	—
Surgeon-General's office	—	1984	\$1,000	—
Surgeon-General's office	—	1987	\$1,000	—
Surgeon-General's office	—	1990	\$1,000	—
Surgeon-General's office	—	1993	\$1,000	—
Surgeon-General's office	—	1996	\$1,000	—
Surgeon-General's office	—	1999	\$1,000	—
Surgeon-General's office	—	2002	\$1,000	—
Surgeon-General's office	—	2005	\$1,000	—
Surgeon-General's office	—	2008	\$1,000	—
Surgeon-General's office	—	2011	\$1,000	—
Surgeon-General's office	—	2014	\$1,000	—
Surgeon-General's office	—	2017	\$1,000	—
Surgeon-General's office	—	2020	\$1,000	—
Surgeon-General's office	—	2023	\$1,000	—
Surgeon-General's office	—	2026	\$1,000	—
Surgeon-General's office	—	2029	\$1,000	—
Surgeon-General's office	—	2032	\$1,000	—
Surgeon-General's office	—	2035	\$1,000	—
Surgeon-General's office	—	2038	\$1,000	—
Surgeon-General's office	—	2041	\$1,000	—
Surgeon-General's office	—	2044	\$1,000	—
Surgeon-General's office	—	2047	\$1,000	—
Surgeon-General's office	—	2050	\$1,000	—
Surgeon-General's office	—	2053	\$1,000	—
Surgeon-General's office	—	2056	\$1,000	—
Surgeon-General's office	—	2059	\$1,000	—
Surgeon-General's office	—	2062	\$1,000	—
Surgeon-General's office	—	2065	\$1,000	—
Surgeon-General's office	—	2068	\$1,000	—
Surgeon-General's office	—	2071	\$1,000	—
Surgeon-General's office	—	2074	\$1,000	—
Surgeon-General's office	—	2077	\$1,000	—
Surgeon-General's office	—	2080	\$1,000	—
Surgeon-General's office	—	2083	\$1,000	—
Surgeon-General's office	—	2086	\$1,000	—
Surgeon-General's office	—	2089	\$1,000	—
Surgeon-General's office	—	2092	\$1,000	—
Surgeon-General's office	—	2095	\$1,000	—
Surgeon-General's office	—	2098	\$1,000	—
Surgeon-General's office	—	2101	\$1,000	—
Surgeon-General's office	—	2104	\$1,000	—
Surgeon-General's office	—	2107	\$1,000	—
Surgeon-General's office	—	2110	\$1,000	—
Surgeon-General's office	—	2113	\$1,000	—
Surgeon-General's office	—	2116	\$1,000	—
Surgeon-General's office	—	2119	\$1,000	—
Surgeon-General's office	—	2122	\$1,000	—
Surgeon-General's office	—	2125	\$1,000	—
Surgeon-General's office	—	2128	\$1,000	—
Surgeon-General's office	—	2131	\$1,000	—
Surgeon-General's office	—	2134	\$1,000	—
Surgeon-General's office	—	2137	\$1,000	—
Surgeon-General's office	—	2140	\$1,000	—
Surgeon-General's office	—	2143	\$1,000	—
Surgeon-General's office	—	2146	\$1,000	—
Surgeon-General's office	—	2149	\$1,000	—
Surgeon-General's office	—	2152	\$1,000	—
Surgeon-General's office	—	2155	\$1,000	—
Surgeon-General's office	—	2158	\$1,000	—
Surgeon-General's office	—	2161	\$1,000	—
Surgeon-General's office	—	2164	\$1,000	—
Surgeon-General's office	—	2167	\$1,000	—
Surgeon-General's office	—	2170	\$1,000	—
Surgeon-General's office	—	2173	\$1,000	—
Surgeon-General's office	—	2176	\$1,000	—
Surgeon-General's office	—	2179	\$1,000	—
Surgeon-General's office	—	2182	\$1,000	—
Surgeon-General's office	—	2185	\$1,000	—
Surgeon-General's office	—	2188	\$1,000	—
Surgeon-General's office	—	2191	\$1,000	—
Surgeon-General's office	—	2194	\$1,000	—
Surgeon-General's office	—	2197	\$1,000	—
Surgeon-General's office	—	2200	\$1,000	—

Note: The age of all officers and all graduates is approximately the following:—

When 10 years of age	1
When 15 years of age	1
When 20 years of age	1
When 25 years of age	1

Approximate value of ships of hospital and medical stores, and long list of other items, and of the

total expenditure, approximately \$1,000,000.

Approximate value of medical stores and supplies, and of the total expenditure, approximately \$1,000,000.

CONCLUSION OF LARRY RUSSELL.—Peace in the outbreak of the Great War, conditions were entered by complete surrender. Since the war, however, these conditions have not been changed. For the time being officers are called for temporary (short) service, suggesting the time given with the option of being absorbed into the permanent service of fixed rank. Officers senior to the rank of Surgeon-Commander are not normally employed abroad, but are devoted for duty in hospitals, depots, etc.

In previous times the medical staff has been called by, and that is that the demand of industry has become more and more determined to create and continuously demand a very high standard of the medical officers of the Navy. From time to time the number of applications for entry as naval medical officers has been comparatively low, and this has led to a number of important vacancies, which have been previously supplied with vacancies drawn from the medical profession in the civilian medical profession. Their suggested applications have on many occasions been beneficial to our service. Opportunities have thus been created for up-to-date professional practice with thoroughly modern hospitals and equipment. Pay and prospects of promotion have from time to time been suggested as to be almost the best type of young medical men to enter the Navy—one has on work and of high physical standard.

ANALYSIS OF SERVICE.—This short review would not be complete without a short account of our auxiliary and auxiliary services, the most important being the following:—

Dr. J. Sutherland Macdonald, of the Royal Naval Medical Service, as vice-commander, R. N. S. (1904) as vice-organ. During the year 1902-1903 dental and dental officers were engaged exclusively as dental duties at the Naval Hospitals, Plymouth, Chatham and Harbottle. In 1904 it was decided to employ various dental officers for work duty at these hospitals. At a later date the number and distribution of dental surgeons were increased until prior to the outbreak of war, twenty-eight various dental surgeons were employed. During the war eight dental were employed at hospitals, about 40, and were granted temporary commissions in the Royal Naval Volunteer Reserve. On the occurrence of hostilities, it was decided to designate a permanent dental service, and officers serving in the reserve were invited to accept commissions in the new dental service. The establishment of dental officers has been increased to meet the needs of the Navy and they now number sixty three officers. The supervision of their work is carried out by a dental officer at Singapore, Captain's rank attached to the staff of the Medical Director General of the Navy.

The Pharmaceutical Branch.—Officers known as Dispensers were known in the service as early as 1845, at which period there were sixteen in the Navy. All the members of this Branch are qualified pharmaceutical chemists. In addition to their ordinary pharmaceutical duties they are responsible, under authority for the supply of the medical stores for and the issue of such as, the various parts of the fleet. Their present strength is as follows:—

Head (permanent) Medical Director General of the Navy	1
Superintendent Pharmacist	5
Senior pharmacists	4
Pharmacists	10

Nursing Service.—In 1864 regulations for Nursing Service were issued. These nursing sisters, who had received previous training in large civil hospitals, replaced the old-fashioned female nurses. In 1893, Her late Majesty Queen Alexandra, became the President of the Royal Naval Nursing Service which heretofore was designated Queen Alexandra's Royal Naval Nursing Service. This Service consists of 1 Head Sister in Chief, 3 Head Sisters, 3 Superintending Sisters, 36 Nursing Sisters. They serve at home and abroad in the Naval Hospitals.

The year 1864 also saw the inauguration of the Royal Naval Dockyard Staff. It has a complement of approximately 1,000 highly trained men who carry out their duties both ashore and afloat. A certain number are trained as laboratory assistants, rubrographers, operating room assistants, messengers, &c. As early as the nineteenth century men were employed to look after the mules in the horse's ships. They were, however, more boys, not worthy of the name of valets, possibly but nevertheless composed of a sufficient high standard to look after the mules. In those days they were called "Livery Boys" and were so named from

a licensed post-lice or guard termed "Look-out" which appears to have been the same which of food for a sick man.

There is also a small Messing Service, and a body of civilian postmen serve as Messengers and Agents. These medical gentlemen are appointed to look after the sailors when they are sick whilst on leave, etc. They are to be found in the company of our ports and the larger cities abroad. Historically the Surgeons and Agents are of great interest, for those ships dates from the early days when sailors if sick or wounded, were treated on board. As such the medical men appointed to look after them were the precursors of the present-day Surgeons and Agents. In considering reports sent in, by-pass days the Nurses of the towns and the "Deaths" of the patients were held responsible but these medical men carried out their duties in an efficient manner.

Surgical Service.—From a strictly medical aspect the Royal Naval Volunteer Reserve consists of 115 medical and 48 dental officers. These gentlemen are engaged in their respective professions in civil life, but carry out periods of training at regular intervals in the Naval Medical and Dental Services respectively.

There is also a reserve of Nursing Sisters guaranteed by the large London and Provincial hospitals. This reserve is known as Queen Alexandra's Royal Naval Nursing Service Reserve.

The Royal Naval Sick Berth Reserve has a strength of over 1,000 members. These are drawn from the various units of the St. John's Ambulance Association and undergo periodical training in the Navy.

Finally there is the Volunteer Aid Detachment. This organisation supplements the nursing service in times of national emergency. It was originally constituted in 1898. At the present time those who volunteer for active service in the event of emergency carry out regular periods of training in Naval hospitals. They are recruited from the St. John's Ambulance Association and the Red Cross Society. These ladies would be employed in nursing, clerical duties, etc. on requisition.

Many other interesting details of the Royal Naval Medical Service are available in the volumes of history, but must be omitted owing to pressure of space. Enough, however, has been written for the reader to get some insight into the gradual development of its present-day high standard of efficiency through the various ages and to realise it as a branch of the medical profession of which its members are justly proud.

SOME REMARKS ON THE TREATMENT OF SYPHILIS

By RICHARDSON E. L. & HILL E. A.

There is a wide diversity of opinion as to the method and kind of treatment which is necessary to eradicate syphilis in any given case. Indeed L. M. Harrison has worked out some figures from the St. Thomas Hospital Clinic, and Moore and Kemp have worked out the figures at the Johns Hopkins Clinic. I have repeated both sets here, as they are very interesting. Harrison aimed to secure 100 per cent. of cure in early cases, and prescribed for non-pregnant primary cases two courses of 904 and mercury each course totaling 45 grains 914 and 7 gr. of mercury administered in ten injections over thirteen weeks, the interval between the two courses being two months. The non-pregnant primary cases he prescribed two and a half each course, and for early secondary cases three courses spread over approximately thirteen months. During the last five years he has administered 4 grains bi-monthly for the mercury in each course. I believe his course was usually as follows:—

No.	I gr. 904 (course)		I gr. 914 (course)		I gr. 904 (course)		I gr. 914 (course)	
	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.
1	904	904	914	914	904	904	914	914
2	904	904	914	914	904	904	914	914
3	904	904	914	914	904	904	914	914
4	904	904	914	914	904	904	914	914
5	904	904	914	914	904	904	914	914
6	904	904	914	914	904	904	914	914
7	904	904	914	914	904	904	914	914
8	904	904	914	914	904	904	914	914
9	904	904	914	914	904	904	914	914
10	904	904	914	914	904	904	914	914

Best for two months. W. H. test performed each three months. Functions were noted monthly after the third injection, before the last dose.

In Table A an attempt is made to compare the effect of mercury with that of bi-monthly when given in conjunction with arsenobenzene. The difference between them is not very striking, and although I need I prefer

Table A. Comparison of the effect of the two courses of treatment in early cases of syphilis. The first course is given in 10 injections over 13 weeks, the second in 10 injections over 13 weeks. The third course is given in 10 injections over 13 weeks. The fourth course is given in 10 injections over 13 weeks. The fifth course is given in 10 injections over 13 weeks. The sixth course is given in 10 injections over 13 weeks. The seventh course is given in 10 injections over 13 weeks. The eighth course is given in 10 injections over 13 weeks. The ninth course is given in 10 injections over 13 weeks. The tenth course is given in 10 injections over 13 weeks.

No.	I gr. 904 (course)				I gr. 914 (course)				I gr. 904 (course)			
	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.	grs.
1	904	904	914	914	904	904	914	914	904	904	914	914
2	904	904	914	914	904	904	914	914	904	904	914	914
3	904	904	914	914	904	904	914	914	904	904	914	914
4	904	904	914	914	904	904	914	914	904	904	914	914
5	904	904	914	914	904	904	914	914	904	904	914	914
6	904	904	914	914	904	904	914	914	904	904	914	914
7	904	904	914	914	904	904	914	914	904	904	914	914
8	904	904	914	914	904	904	914	914	904	904	914	914
9	904	904	914	914	904	904	914	914	904	904	914	914
10	904	904	914	914	904	904	914	914	904	904	914	914
Total	904	904	914	914	904	904	914	914	904	904	914	914

TABLE 6.—*How to Give the Salvarsan Course* (Yarrow, *Lancet*, 1910, p. 141). (Note should be made as to the proportion of active substance contained in salvarsan.)

Course A is B. Treatment intervals equal.

1. First dose 0.4 gram. (0.4) with Hg as with B, as it should be.
2. From 2 to 6 0.2 gram. (0.2) with Hg as with B, as it should be.
3. From 6 to 10 0.1 gram. (0.1) with Hg as with B, as it should be.
4. From 10 to 14 0.05 gram. (0.05) with Hg as with B, as it should be.
5. From 14 to 18 0.025 gram. (0.025) with Hg as with B, as it should be.

Course C is D. Treatment intervals also equal.

1. First dose 0.4 gram. (0.4) with Hg as with B, as it should be.
2. From 2 to 6 0.2 gram. (0.2) with Hg as with B, as it should be.
3. From 6 to 10 0.1 gram. (0.1) with Hg as with B, as it should be.
4. From 10 to 14 0.05 gram. (0.05) with Hg as with B, as it should be.
5. From 14 to 18 0.025 gram. (0.025) with Hg as with B, as it should be.

TABLE 6.—*How to Give the Salvarsan Course*

Treatment days	Salvarsan 0.4 gram				0.2 gram				0.1 gram				0.05 gram				0.025 gram				Total			
	1		2		3		4		5		6		7		8		9		10		11		12	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
C	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

TABLE 7.—*How to Give the Salvarsan Course*

Treatment days	Salvarsan 0.4 gram				0.2 gram				0.1 gram				0.05 gram				0.025 gram				Total			
	1		2		3		4		5		6		7		8		9		10		11		12	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
C	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

TABLE 8.—*How to Give the Salvarsan Course* (Yarrow, *Lancet*, 1910, p. 141).

Treatment days	Salvarsan 0.4 gram				0.2 gram				0.1 gram				0.05 gram				0.025 gram				Total			
	1		2		3		4		5		6		7		8		9		10		11		12	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
B	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
C	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

In the 150 cases in Table 8, 154 were treated according to B, and 154 were treated according to C.

(1) Group 1, 2, 3 contained 1000 cases and Group 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100. Cases were divided into the following groups:—

- (1) Treatment 1 to 4 (experimental) 4000—Treatment 1b was not used, as it has been a success.
- (2) Treatment 4 to 4 (experimental) 4000—Treatment 4b was not used, as it has been a success.
- (3) Group 10 to 15 by 1000 (control) 5000—Treatment 10 to 15.
- (4) Treatment 1 to 4 (experimental) 4000—Treatment 1b was not used, as it has been a success.

In Groups 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100. Cases were divided into the following groups:—

(1) Treatment 1 to 4 (experimental) 4000—Treatment 1b was not used, as it has been a success.

(2) Treatment 4 to 4 (experimental) 4000—Treatment 4b was not used, as it has been a success.

Table 10.—Cases received, Treatment 10 (Control)

Treatment Group	Number of cases	Percentage of all cases	No. cases	Percentage of cases in hospital from			Group number
				1st group	2nd group	3rd group	
1	10	0.1	10	1	0	—	10
2	10	0.1	10	1	0	—	10
3	10	0.1	10	1	0	—	10
4	10	0.1	10	1	0	—	10

Table 11.—Cases received, Treatment 10 (Control)

Treatment Group	Number of cases	Percentage of all cases	No. cases	Percentage of cases in hospital from			Group number
				1st group	2nd group	3rd group	
1	10	0.1	10	1	0	—	10
2	10	0.1	10	1	0	—	10
3	10	0.1	10	1	0	—	10
4	10	0.1	10	1	0	—	10

Table 12.—Cases received, Treatment 10 (Control)

Treatment Group	Number of cases	Percentage of all cases	No. cases	Percentage of cases in hospital from			Group number
				1st group	2nd group	3rd group	
1	10	0.1	10	1	0	—	10
2	10	0.1	10	1	0	—	10
3	10	0.1	10	1	0	—	10
4	10	0.1	10	1	0	—	10

Table 13.—Cases received, Treatment 10 (Control), cases in hospital from

Treatment Group	Number of cases	Percentage of all cases	No. cases	Percentage of cases in hospital from			Group number
				1st group	2nd group	3rd group	
1	10	0.1	10	1	0	—	10
2	10	0.1	10	1	0	—	10
3	10	0.1	10	1	0	—	10
4	10	0.1	10	1	0	—	10

Hoffman maintains that the conditioning method is much less likely to be followed by severe reactions. His conclusions on these figures are:—

(1) That treatment is not to be recommended as a substitute for N & B in the treatment of early syphilis, but as an adjunct if it is probable to necessary because of its greater tolerability.

(2) That the conditioning use of N & B, and treatment in mercury is preferable to the plan in which a course of N & B is followed by one of benzathine or mercury, namely because it is less likely to be followed by severe reactions.

(4) In a case of great prograde, suppurative, or chronic treatment before the acute reaction becomes positive.

(5) That a treatment consisting of ten courses of 5 to 8 gm. N. A. B. with 1 gr. mercury for 4 gm. iodine is only just sufficient for acute negative cases, while three such courses is barely sufficient for some positive primary or early secondary cases.

Treatment in drug.—In the selection of treatment recommended by the drug, on June, 1909, the average course of 1.75 gram of N. A. B. and 1.15 gram of iodine or 7 gr. mercury in 7 injections calculated over nine weeks, there is then a six weeks interval during which two weeks get iod treatment is given. The course is then repeated. For most negative primary cases, if all tests are negative, no further treatment is given, but the patient is bled and kept under careful observation for two years after cessation of treatment. For secondary cases and those primary cases in which the N. B. is positive at the time of the first injection they give twice the amount of treatment as a minimum and more if there are any subsidence in it. For tertiary cases it is impossible to lay down any course they must be treated individually. The course of treatment should always be tested.

Some helpful advice is given as follows:—

Careful watch must always be maintained for signs of relapse and signs of intolerance. Before each injection the patient should be carefully examined for signs of toxication, patches of vitellina, swollen tonsils of mouth, the presence of albumen in the urine or other signs indicating that if a patient is not reacting usually to the treatment. In the case of intolerance, inquiry should be made of any personal opinion after the last injection.

Exacerbation is a sign of intolerance to arsenic and some experience has shown that sugar acts as a less protective against the drug. If or if not sugar may be given in such case half an hour before the injection. The solution sugar solution should be 10 to 20 min sugar in 85 gms of water.

For hypodermis of with 10 per cent solution in distilled water should be given intravenously in 1 c.c. doses at least during the 10 to 15 days after the intolerance. Thacker (Boston) and Weyton (Wey and Baker) recommend per sephene. The injections are given daily to an alternate one for four to six injections.

Diuretic.—Intravenous injections of glucose, 50 c.c. of 5 to 10 per cent solution should be given daily until signs of improvement occur, then stop, less and give less frequently. The solution should be made sterile by 10 min. and saving with.

Intermittent intravenous.—1 c.c. of 1 in 1,000 solution of adrenaline (10 gms) should be given subcutaneously.

Course of treatment in positive, convalescent, or late.—Adrenaline chloride 1 in 1,000 solution diluted 1 in 2, should be given intravenously in the same doses as above and may be repeated if necessary four times in twelve days.

Latest procedure and which varied 30 to 35 g. of fluid in an operation which may save the life of the patient. It may have to be repeated several times if the patient shows signs of relapse or demonstrates signs of recovery when the last procedure is done to eight hours.

Myelograph Method of Treatment.—When I was at the Lark Hospital in 1925, McDonagh used to say, "Keep them under treatment for three years and you change the mechanism of treatment." His method of treatment was: First five operations of 0.8 gram N. & B. He gave the first three operations at two day intervals as he used it against the Bartholinov reaction. Then four operations of 0.8 gram N. & B. at weekly intervals. That was all the cure the patient got. Then —

(3) Eight weekly operations of leucorrhoea.

(4) Leucorrhoea operationally for a month.

(5) Rest for a month.

(6) Eight weekly operations of mercury. Then leucorrhoea and mercury alternately for two to three years.

McDonagh states that the papular, erosive or atrophic changes which become successfully infected, never give rise to serious complications. It is the complications, which the patient usually ignores, which give rise to disease of the nervous system. If you get a negative C. & P. at the end of three or four years the patient will never get better or is C. & P. Any damage is done in the first few years. In his opinion recurrent syphilis cannot be cured. He knows those that seem to have been cured symptomatically, but says there is great danger in considering them as pure mercurial cases because of atelectasis. He thinks that arsenic, besides the blood-stain, but does not get at the lymphatics. That is why you have to go on with leucorrhoea and mercury for two to three years.

Salvarsan Method, given 0.8 gram N. & B. per three weeks. He also thinks that N. & B. will kill the spirochete, not in the blood, but not those in the lymphatics, hence mercury. It — There must be got at by medicine coming from elsewhere to the lymphatics.

Extensive Study of cases that my reader never can recall as a long enough real salvarsan course. He gives a weekly injection for three weeks, arsenic one week, three more operations, arsenic two weeks, two more operations, arsenic three weeks. Repeat with rest in rest of the year. Do this for one year if blood is negative, make longer intervals to the last six months. He writes to me: Salvarsan & Harsco's treatment of syphilis with a negative W. R. should have a year's treatment with at least 25 injections of N. & B. He has had several cases which had a negative W. R. but still had at the end of three years, but after a few operations, removed developed leucorrhoea, or other clinical signs of active spinal syphilis with a positive W. R. and never again had.

Relapses.—We do know that relapses are frequent under the short course (or thought injections) of arsenic and and mercury, followed by two years' interval treatment. This is shown by Glynn, Roberts and England (Medical Research Council, Special Report, Series No. 157). They found in 225 cases treated within three months of infection with 304 and mercury

that thirty were relapsed within six months of the commencement of diet, stopped, whilst of course the patients were under medical treatment. Of the remaining 124 in this class 122 continued under medical treatment for seven to twelve months, and 106 of these showed twenty three relapses. They actually lived a longer percentage of epilepsy in those whose treatment (maintained within three months of relapses) was continued and with recovery after the attainment of a negative W.B. than in those who received no such maintenance treatment. These were debaters who spent up to seven hours later and were tested. Out of 122 who turned up again within six months, eight were found to have relapsed spontaneously, and in 114 who returned seven to twelve months after the commencement some eighteen relapses were discovered.

Statistics show that these figures indicate the opinion that a short course of anticonvulsant and recovery costs only a small proportion of costs and that maintenance treatment with recovery alone is better than the point of view of conducting the disease in those not cured by the preceding anticonvulsant and recovery treatment. The modern principles of management require that treatment shall be continued by the ingestion of anticonvulsant compound and of recovery or towards the arrest of not less than thirty seizures and beyond the stage when the means have first given positive results and that it shall not be stopped even when under the convulsion-spasm itself it also requires. The purely specific treatment on such a solution of convulsion is naturally supplemented in circumstances very definite, by a diet, and by the ingestion of drugs which seem likely to assist the metabolic functions more tubular, such as sodium thiosulphate, or to improve the others, such as proteins which producing convulsion and cerebral stimulation. It, in their postulate that, after ingestion of drugs that, the patient should be observed for at least two years, and only absolutely, but by diet of the diet and special food.

By order of Royal Society that it should—the index of professional practice. Finally—on 4 July 1911 and 1912 patients and epilepsy are taking the place of patients who become permanently. Observed on a disappearing disease under medical supervision. It would seem to be assumed, until epilepsy has been completely and finally cured, that the diagnosis of absence is not too serious, the diagnosis of convulsion should never be less than two months. The time required for the diagnosis follow up. We are already and substantially within twenty four hours for it seems.

The procedure for preventing relapse follows by dieting as follows of the index of the patient on to day a long and complicated affair of building up recovery, by combining and recovery, and by the continuous employment of not in motion of drug drugs like history which are assumed to be intense symptoms but good in patients in the highest power of the patient. The anticonvulsant has been found to be effective against it, but they have given just, say, in the quick suppression of a convulsion. The price and with various anticonvulsant means, however, and after the first stage of recovery should be kept. Some patients have experienced that they are on M. A. B. A further has shown that the anticonvulsant is a valuable in the anticonvulsant, it can be taught in like M. A. B.

Then, when we are to show students that a patient is cured, we find that a determining proportion of cases are merely treated and not cured. We do not really know what the permanent explanation of the failure of H. H. B. is. But either said we are all physicians but few are cured, or, as it is reasonable that we are expending enormous efforts on the treatment of early breast patients whose outcome has no public health bearings and no real personal significance for themselves.

Professor J. H. Stokes believes that telegrams are the source of so much disappointment in the general understanding of treatment of infection. From the diagnostic standpoint we do not as yet fully understand or appreciate telegrams. A serious cause of exhibiting a false confidence in modern treatment, has led to our perception of some less dangerous cases. There is good reason for questioning whether the confidence of telegrams in the completely treated or cured early case is not so high as we have overestimated much of the good effect of the disease in controlling the effectiveness of the more serious primary case. So far as the effect on general confidence is concerned there is nothing more dangerous than the patient with early syphilis treated long after a few H. H. B. injections and a little mercury is brought to telegrams with a new disease or delayed cure of an older infectious disease, and he declares infected again to his family against telegrams control of any kind under the delusion that he is cured. It might almost be suggested that two years of publically told and constantly told by the patient in the knowledge that he is infectious would produce a better mental state than that of the majority of dangerous cases patients whose half-dead "where" and "realized" symptoms lead them with the suggestion that they can no longer transmit the disease.

It is doubtful if you will have any serious effect on syphilis per se, but it will do the worst of syphilis cases or dead infectious diseases such as cancer with its great many lesions. Give 5 gr. i. d. one week 10 gr. i. d. the second week, and 15 gr. i. d. the third week. Repeat in one week time. Give the drug in small balls and drink half a tumbler of water immediately afterwards to give it on milk.

I have found Syphilis treated helped in cases which could be treated by H. H. B.

In his report in 1907 to the British Medical Association meeting, David Lenn says in the following conclusion regarding leucorrhoea:—

(1) Dosemide is an active antiseptic drug and is more rapid in its disinfectant action on the *Syphilis* pathogen in vivo than mercury. It is not so rapid as the silver-nitrate group of drugs in this respect.

(2) Dosemide possesses the same degree of activity as rapidly as the arsenic-nitrate and more rapidly than mercury.

(3) Dosemide with low percentage in this sense than the arsenic-nitrate or arsenic-nitrate by the Wassermann test, but it is more active than mercury in this respect.

(4) The same oral administration of leucorrhoea and arsenic is more potent than silver-nitrate drug alone and is less than danger of given in the arsenic-nitrate dose. The same holds good of arsenic and mercury.

(5) The administration of metallic leucorrhoea in arsenic-nitrate is considerably less than pure and oral effects and in this respect is better tolerated than other arsenic or mercury.

(6) Dosemide is a very valuable drug in cases of syphilis which are intolerant to treatment by arsenic or mercury.

(7) Dosemide is a very valuable drug in the treatment of any patient who has

action of mercurial fumes, whether the latter is due to its action on the skin itself.

3. The characteristic eruptions of an syphilis composed of leucorrhoea gives some strong evidence to such less value of these effects than other methods of clearing away the last of the mercury from the existence of syphilitic leucorrhoea, or the leucorrhoea without any value of leucorrhoea.

4. The value of leucorrhoea and its value to the other syphilitic eruptions of leucorrhoea does not in itself justify its use in leucorrhoea the length of time used of the every case or syphilis should be treated and kept under observation.

5. It is not true that of syphilis to other syphilis leucorrhoea is not in support of the treatment of syphilis and should not be used alone even in the very earliest stage of syphilis.

6. Mercurial fumes to be absorbed by the body comes from a house garden called "mercury". The power of the mercury is effect, then transformation depends upon these effects of (syphilis, leucorrhoea). Syphilis is a syphilis not cured by leucorrhoea from the general action of mercury but by an action that comes of syphilis (leucorrhoea). Syphilis means then for the purpose of action of leucorrhoea comes directly with the quantity of leucorrhoea coming to the body. This is a good leucorrhoea patient. It would appear that this patient is higher when leucorrhoea acts as well as when the syphilis leucorrhoea. The treatment of syphilis of leucorrhoea itself would be a second procedure, but the treatment of syphilis of leucorrhoea composed of this is wrong in principle and dangerous in practice.

In the United States of 1890. The treatment says that he generally believes that better results than by mercury, N. A. B. are obtained by giving large doses of mercury in solution of leucorrhoea in solution. These are given by pushing up the dose and let the patient be kept under the action of leucorrhoea, this pushing up the dose is not to be used in the patient of the leucorrhoea, this pushing up the dose is not to be used in the patient of the leucorrhoea, this pushing up the dose is not to be used in the patient of the leucorrhoea. It is clearly, then, outside leucorrhoea or high up in the patient of the leucorrhoea.

Mercurial Eruptions. This is useful (1) to help diagnosis, (2) for diagnosis as in case. No stage of syphilis will give you 100 per cent of correct diagnosis. If you get a reaction which is not in accord with clinical signs, always have it reported. You can give a mercurial eruption of N. A. B. and say again. Test the blood a week after the mercurial eruption, if necessary you can do it in three days. Do not accept anything but a definite positive. "Weak Positive" is a bad term, it is better to call it "Doubtful Negative". You may say roughly that you don't get a positive N. A. B. for a fortnight after the test appears. Corbett states that he gets 50 per cent positive in the first week, 64 per cent in the second week, 66 per cent in the fifth week, and 80 per cent in secondary syphilis. A syphilis reaction obtained during treatment only indicates that you have suppressed the activity of the syphilis so much that he cannot give you any test that reaction. You have not, however, cured your patient. It only indicates that the patient is responding well to your treatment. A positive flocculation test is an indication for more treatment even if the N. A. B. is negative. It is better to do both tests, but in case of doubt I would always rely upon the W. D. rather than the flocculation test. Having got a negative W. D. test, I always give at least two courses afterwards. At the end

is maintained the patient does occasionally relapse even if all his W's continue to be negative, the relapse relapse within the first year.

Willy of Stuttgart, thinks that many cases are not being treated for syphilis, although a positive W.R. The reaction is not reliable, and is frequently only a symptom. In a certain chronic condition and does not show what is happening in the organism.

Ludwig John H. Fisher of Pennsylvania explains that early diagnosis and prompt treatment are the principal points of the latest treatment against syphilis. He points on the infectious focus and its elimination and prevention of dissemination of the disease. How to syphilis. We must concentrate on the disease and the infectious organism. Syphilis is progressively going up in America, because for a long time they give up investigations as far as the disease. There are no reliable specific tests and before the early sera substance for a period but in two years it has an even outcome.

McKinnon has for a long time stated that the Treponema pallidum is only one stage in the life cycle of the organism. He thinks it is the main parasite of a spirochaeta parasite. The organism is passed as long as the organism has to go through a very complicated life cycle. There are various phases which cannot be attacked.

Willy reported upon that from cases of tertiary syphilis syphilis taken and 5, 14 cases taken from. In every case a very thorough examination of the fluid taken to reveal treponemes. Syphilis occurred in the experimental rabbits in more than 60 per cent of experiments. The test was to find treponemes in the reaction against fluid suggested as from the possibility of the organism existing because under some other form and only as suggested in the report of a treponeme which transferred in the tissues of the rabbit. Lippman, Gordon and David H. Meyer were likewise, as the results of cases were negative, that the Treponema pallidum is only one of the stages in the development cycle of the syphilis virus. They found that the lymph glands of animals inoculated with syphilis, may show no treponemes, but that such lymph glands prove virulent when inoculated into a fresh animal. They think that the organism exists in these glands in some form other than that of the treponeme. They suggest that these phases of the virus are more resistant to treatment than the treponemal form, and that this is the subject of further study and as these forms of the disease as it affects the central nervous system is which no treatment may be found.

The London Life Assurance Company, in thirty four years' experience, found that the mortality of syphilis was generally was 40 per cent. when the reported. The age groups the entire mortality was as follows: 15 to 25, 30 per cent; 25 to 35, 50 per cent; 35 to 45, 51 to 60, 51 per cent; 61 to 70, 70 per cent; 71 to 80, 70 per cent. American Life Assurance Companies rate this generally as an average mortality of 50 per cent over the reported.

Pauline Chamberl and Langer agree in the effect that the disease in the condition of syphilis which has been exposed to a new treatment in recent years is not only due to better methods of treatment, more strenuous education of the public and other social factors, but as in some extent a natural change in the nature of the virus and organisms which characterize the epidemiology of many infectious diseases. The argument is supported by a series of graphs illustrating the rise and fall of the incidence of each disease, a disease appears which there is an epidemic, such as tuberculosis, and in a place but a few years later there is an epidemic, such as the incidence of each disease. Assuming these curves to represent the incidence of syphilis may be expected in the near future.

Other infectious diseases, including gonorrhea, run and fell in parallel with those of syphilis. The rates of gonorrhea by sex are parallel with those of syphilis. The rates were most marked in Scotland lately. From 1903 to 1904 there was a marked decline in the incidence of syphilis and everyone was glad to witness it as evidence of the value of the therapeutic agents against venereal diseases which were applied with increasing intensity after 1902. The great decline from 1903 to 1911 led some physicians to declare that in ten years syphilis would be completely extinct in their countries. From 1904, though, gonorrhea increases have correspondingly increased there appears to have been a fairly definite check to the decline of syphilis in England and Wales while in France, notwithstanding reports of a definite increase in the last three years.

It has in *Morveau's* *Précis* of *syphilis*, in discussing what period should elapse from the date of infection before a syphilis may marry (under the name of— (1) The untreated man, (2) the treated man, (3) the untreated woman, (4) the treated woman. In (1) the following series will not include but in his experience the longest period after infection that a man remained infectious was six years. In cases where a positive result was in the first reduction of infection it is useless possible to determine the duration of the disease. In these cases a rough guide is the patient's age when a cure was obtained would always be considered to be infectious but one aged 35 would be much less likely to be so. In the case of a man treated with Iodo the primary stage, although theoretically infectious contact may be permissible, it is better to wait as recommended by the *Genoux* Health Office for two years. If treatment was not commenced until the secondary stage, patients should be postponed for at least six years and then permitted only when no signs have been seen for two years following treatment. The untreated syphilitic woman is practically always a source of two infections. Unquestioned congenital syphilis is a disastrous mark more frequently in women than in men as marked transmission before marriage. An apparently healthy syphilitic woman may transmit the disease to her offspring many years later. In the case of the treated woman, extensive statistics show that treatment prior to pregnancy protects only half the children but treatment during pregnancy secures almost absolute protection.

Summary of the 'Reflections of the Knowledge on the Treatment of Syphilis', shows that only by repeated treatment of the skin of the skin can the treatment of latent syphilis, and shows evidence to the failure of syphilis in the genital infection and the serum tests. With regard to the genital infection, it is many as 80 per cent of patients show no diminution and almost all pass from acute to latent stage without treatment. Results based on 500 tests of women and show that the serum was negative and the final positive in 4.12 per cent. Results based on 207 per cent of the serum which positive final diagnosis or only weakly positive men and Dainton found the same in 36 per cent of 400 cases with positive final. Marmontel in 1901, in 1000 cases of syphilis of 4,000 syphilitic children, found that only about 11 per cent became victims of general paralysis, while in untreated syphilis and 54 per cent of 2,000 females patients found that in 11 per cent of the cases it complicated the state of the spinal fluid was complicated by treatment. Combining these figures with the high percentages found in the early stages it is evident that up to almost all with primary syphilis

developed a later stage type of severe diabetes. On the other hand food which is positive practically is negative. In a number of many kindred syndromes Diabetes and Xerops have been only one case over 50 years of age with a positive food but no clinical signs of severe diabetes. These facts can be very well with a preliminary negative food become malappetitive.

In the treatment of diabetes on the Navy it is important to make the patient more active as quickly as possible and, feed up his tissues so that he need not be on the sick list, but can do his work and attend his household. It is also most convenient to get through his course as rapidly as possible so that he may be available for duty as his course.

I now give a first course of ten injections of M & B, one every fourth day. Most of the M & B given intravenously is absorbed in three days. I rarely give more than 2 g. in one injection and consequently get very few reactions. The solvent mass of average weight seems to stand the course very well. The second and further courses need not be so long as the reaction, at such short intervals. Each case must be keyed on its individual course: diabetes and pancreas being needed. It is the too long interval between the first and second course which is the cause of much of the second episode in the Navy. Most, for various reasons, return due to the suspension of the course, do not get their second course at the proper time. I give insulin at the same time but do not make it. Insulin must be needed, because it means stopping treatment. It means that you want another metal electrolyte in the blood to help the tissues to do their work. Arginine being at present the most important drug, it seems to me that it is the interval between the second course which causes most. At present for those who do not fit in the intervals with insulin or mercury I am advising an interval of two weeks between the first and second course in suitable cases. If pancreas or diabetes cause the interval will have to be lengthened, but there is no objection to do so at present.

THE MANAGEMENT OF A DIABETIC PATIENT FOR OPERATION

By ROBERT HILL, M.D., M.R.C.S.

THE case taken to illustrate the method employed is that of an officer, aged 45, with symptoms: severe diabetes, and dry gangrene of the lower right leg extending about halfway up the shin. The great toe was amputated and the ulcer was over all on the lower line of the condition. His urine contained a heavy dose of albumen, and a considerable quantity of sugar and ketone bodies. Blood sugar was 200 mg. per 100 c.c. of blood. His general condition was not good.

In the first place some general principles necessary for success might be mentioned—

(1) The patient should be conscious in order to direct action in leading the operation.

(2) His blood sugar should generally be controlled to 120 mg. or less as possible, 100 mg. or less is better.

(3) The patient must have plenty of carbolynol before going on to the operation, table—this is the main factor on which success depends. Plenty of carbolynol combined with adequate fluids will ensure that all the fat has completely broken down and do not leave ketone bodies. This is essential to the success of the operation, for if ketone bodies persist in the blood, chloride test was present in the urine, the patient is in a pre-acute condition, the wound is not likely to heal, sepsis is probable, collapse often takes place after the operation as shock is followed by some effects of carbolynol that prevent the liver from being depleted of glycogen while under the anesthetic. Depletion of liver glycogen while under-ethylol is all prohibiting means death. A laboratory experiment with this end. Two or three guinea pigs whose livers had been depleted of glycogen died during the hour which of an anesthetic whereas guinea pigs whose livers were normal were not adversely affected. It seems to follow therefore that provided ketone and depletion of liver glycogen are prevented during the operation, a little excess of sugar in the blood and urine is not of much account for the time being. As there is a lack on the continent. It might be mentioned here that a positive blood chloride test does not follow in the urine in all the almost equivalent, whereas a positive ketone test for acetone bodies, especially if the reaction is weak is one of very much practical importance for the moment. The test is with sensitive showing a positive reaction in a dilution of 1 in 100,000.

(4) The patient must have plenty to drink especially after the operation.

(5) The liver chloride test must be negative otherwise the effects and dangers of ketone are present (see part 2).

(6) A mouth-pieces Rothert's test is rather an indication of a tendency to ketone from an actual indication of any danger.

(7) Before, during and after the operation, the following measurements should be made at least once daily. (a) Tests for the presence of sugar in the urine and ketone bodies, both by the ferric chloride and Fehling's test. (b) A blood sugar test. As a general rule the blood for the blood-sugar test should be taken at the same time each day. It may be necessary to vary it as the physician might like to have more than one blood sugar test a day or one day. The fasting blood-sugar might be tested before the evening meal and again, or the blood-sugar might be tested three times after the breakfast and only morning meal, or an hour after the meal. (c) will be noted that the middle meal on the standard diet mentioned hereafter has little carbolynol. Each reading has its own obvious significance and helps in the management of the case.

(8) If an operation is undertaken for gross sepsis it should be borne in mind that as soon as the septic focus is removed the

effect of insulin is likely to become much more powerful. Therefore after an operation for wound goes upon hypoglycemia or disconnected blood sugar is likely to occur, necessitating a reduction of insulin or an increase in the carbohydrate in the diet.

(3) Hypoglycemia may also occur when a patient first begins to take insulin therapy after an operation.

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In the new under discussion there was some for a certain amount of preparation. The operating surgeon was waiting for some sign of diabetes in the patient's blood sugar. The first thing to be done was to put the patient on an adequate standard diet, which was as follows:—

Breakfast—An ounce and a half of oatmeal, with 1 oz. fat or meat or butter and eggs. (Tell the patient he can eat his usual amount of these.)
Lunch 1 oz. butter 1 oz. white or brown bread 1 oz. (Tell it is harmful to eat.)
He can have in addition raw tomato, or green vegetables. If the patient cannot eat with more he might have a little soluble diabetic bread or a diabetic biscuit or two.

Tea—An ounce or only given in the morning and evening, then should be as far as possible from carbohydrate. Give about soup, bread, or hard tea, fat or meat (or have some low sugar portion of these) Green vegetables (planty) diabetic biscuit 1 or 2 oz. 1 oz. butter 1 or 2 oz.

Tea—Two diabetic biscuits and a cup of tea.

Dinner—That soup or soup with vegetables. Meat or fish, or both (as much as he usually eat). Bread 1 oz. (biscuit) or with two medium butter 1 oz. cream 1 oz. green vegetables coffee, and perhaps some and again of our usual severe patients 1 oz.

This diet is adequate in bulk in carbohydrates in vitamins and in calories (2,200). It is a standard diet for diabetes in which the dosage of insulin can be estimated. It can of course be increased and varied according to circumstances.

The next thing to do is adjust the dose of insulin so that the blood-sugar and urine become normal while on this standard diet. The full details of the method of doing this and the reasons will be found in the authors' paper, "Insulin," published in the *Lancet* on 19th April 1938. Briefly as an ordinary case, always begin with a small dose of insulin say two units night and morning. Increase by a unit a day night and morning for three or four days, then increase by a unit night and morning every third day. When the dose gets up to 15 units night and morning keep at that for a bit and observe what the blood and urine are doing. As long as there is a little sugar in the urine there is generally no fear of hypoglycemia, and so long as there is no fat in the urine which gives a

point, in the chloride test, the small amount of sugar will do no harm (or good). When treated by the blood-sugar and urine os. normal, the adequate dose of insulin for the standard diet has been determined. A couple of weeks of treatment night and morning added to the dose keeps the patient going. The diet may now be altered as much as one likes, with a variable increase or decrease of the dose of insulin.

In the case under discussion more rapid progress had to be made with the insulin dosage, and this rapidly can be rendered safe in a hospital setting and into the advantages of a laboratory where immediate blood-sugar tests can be done, and a staff on the alert for any signs of an coming hypoglycemia. This case was treated on 7 units night and morning, and increased by a unit each day night and morning, for four days. By the sixth day it was considered safe to increase the dose more rapidly, and on the fifth day 15 units of insulin were given night and morning, and jumping again by the blood and urine tests, up to 15 units night and morning the next day. Here a halt was called. The blood-sugar was approaching normal, and the urine os. normal, except for a weakly-positive ketonuria reaction. On the third day after the insulin was increased to 15 units night and morning, the blood sugar became normal, and the urine normal except for an occasional weakly positive ketonuria reaction. On the second morning of this dosage the patient complained of one or two recurrent attacks of giddiness, so the insulin was reduced to 15 units night and morning.

As soon as the insulin began to take effect the giddiness stopped spreading, and as the operating campaign was ready, and the patient getting exhausted with the pain of his leg, operation was decided upon in spite of the occasional weakly-positive ketonuria's test. A little sugar in his urine also would not have contra-indicated operation, but the three chloride test were too negative.

As regards the actual operation, the following routine was carried out:

- (a) Patient had his mouth dry, including his full bladder and small intestine the day before the operation.
- (b) The anaesthetic allowed was gas and oxygen and ether, not chloroform.
- (c) Before the operation he had his usual bowel in the morning, with 60 gram of glucose by the mouth, and an injection of 15 units of insulin. It can be generally accepted, but only as a rough rule, that in a moderate case of diabetes one unit of insulin can burn 2 gram of glucose. Experience will help one to judge the separate dose separately (it can be limited to any individual case on a preliminary standard diet and kind of dosage of insulin). The operation is best performed soon after the glucose and insulin in the morning. If for any reason the operation should be unduly prolonged (two hours or so), a further 60 gram of glucose per rectum and 30 units of insulin should be given during the operation. (This was not required.)
- (d) The normal routine of fluids, renal output, etc., before and after an operation was carried out, except that instead of the usual saline including glucose each time as usual, the glucose was given

in another dose of 50 grains with 20 units of insulin in the evening. (4) Morphine was given throughout as desired. No special adaptations or special drugs were permitted, as they produce a positive ferric chloride urinary ketone test. (5) The day following the operation the patient was encouraged to take as much of the standard diet as possible. He took 500 cc. food and diabetic insulin. In addition he had 50 grains of glucose with 20 units of insulin morning and evening. The amounts of glucose and insulin necessary were calculated as blood sugar and urinary tests. (6) The next day he was put back on the standard diet, with his insulin 16 units of insulin night and morning.

There was a course of dry postoperative and not great sugar, and was anticipated that there would not be much change in the status of the insulin, but an effort was carefully watched. A blood sugar test was done and a catheter specimen of urine was taken immediately after the operation. The blood sugar was 0.25 per cent; the urine contained no sugar; the ferric chloride test was negative, and Hoffman's weakly positive. The day following the operation the blood sugar was 0.20 per cent, and the urine the same as before. On being put back on to the standard diet, the second day after the operation the blood sugar and urine were normal, and have remained so ever since (in month). The dog was surprised just where the knee. Patient took the anesthesia well, he recovered rapidly from the operation, the wound healed normally, and he had no single noteworthy symptom or sign. Ten days, a month after the operation, he is well and comfortable, eating out of doors in a chair, with a little stiffness to his standard diet as the shape of a triangle a day, and a limited ration of food. For this he requires 20 units of insulin night and morning. Blood sugar and urine are normal.

As long as the patient is on an adequate diet, with the proper dose of insulin, and there are no ketones positive to the ferric chloride test, and the blood sugar is about normal, manifestations as "diabetic coma" are unlikely to occur.

Hypoglycemia coma may, however, occur and this is associated with no sugar or ketones in the urine. Insulinism was left with the staff that of any of the following symptoms and signs of an evening hypoglycemia occurred, especially if there was no sugar in the urine, the patient should be given a lump or two of sugar, or, nasal administration (syringe of water and insulin) was commenced but insulin or paler of the face, temporary pallor, fainting weakness or limbs, tremor, sweating, rubbery rigidity to grip, coldness in the hands, nervous hyperhidrosis, excessive hunger, anxiety or motor disturbances such as sphincter, diarrhea, convulsions, coma or death. The onset of hypoglycemia might be confusing in a case of diabetes as "diabetic coma" might be diagnosed and insulin given, which would make matters worse, as the insulin would tend still further to reduce the already diminished sugar and deepen the coma.

As a precaution is indicated, especially as in the case as there

with a trace of albumin in her urine. There seems to be no contraindication to the use of morphin, especially when one remembers that diabetes need to be treated by morphin, caffeine, etc. The morphin seemed to have no effect on the intake of insulin.

If an operation is so urgent that it must be immediately performed, one has to cope with some difficulty. If there is only a little sugar in the urine and blood and no ketones, the patient will probably do well without anything. But 10 units of insulin and 50 gram of glucose before the operation would be a safeguard. If there is a glycosuria with low blood-sugar and some sugar in the urine, insulin is contra-indicated. If there is no ketones and ketone bodies, the severity of the case can be judged, and 50 gram of glucose with 10 to 15 units of insulin given. The greater the severity, the higher the dose of insulin. In severe cases 20 gram of glucose and 15 units of insulin can be given every four hours but the nurse should continually watched to note the disappearance of the sugar. If this happens, the insulin can be stopped until the sugar reappears. If at two or three days no end of sugar, when there is sugar in the urine and the knee chloride test negative, eliminate glycosuria by the former history and give 50 gram of glucose with 10 units of insulin before the operation. The glucose and insulin may be given every four hours, the subsequent doses of insulin being altered as necessary by the increase or decrease of sugar in the urine. If the sugar disappears stop the insulin.

Referring once more to the patient under discussion. I have asked him to write out what he would like to do at all times and no medical trouble, the only thing to adjust that as liberally as possible with the proper dose of insulin before he leaves the hospital. In a patient aged 65, two or three extra units of insulin a day are of no account if they will render her life comfortable. A little alteration will have to be made in the diet since which he volunteered to use for he has made the most of it. I notice that it contains not only 1 gram for tea but 2 gram for every meal.

The all practical purpose 50 gram of glucose can be immediately consumed by taking four or five table-spoonfuls each spoonful mixed level with the edge of the spoon with a spoon. These four spoonfuls represent 50 gram of glucose.

Bordeaux Test—Put powdered ammonium sulphate into a test tube, up to 1 cm high, add a pinch of sodium metapermanganate. Add in this 1 cc of urine. Shake thoroughly and then add an equal bulk of ammonium hydroxide slowly. When liquids meet a cloud and ring appears. Now shake the whole test tube up and a light pinkish violet colour comes, indicating a positive reaction.

Barium Chloride Test—To 1 cc of urine add a few drops of a 10 per cent barium chloride solution. A pasty white colour indicates a positive reaction, the colour being usually deep.

I am indebted to Surgeon Captain H. K. H. Dewar, R.N., for his kind consent to the publication of this case.

THE INJECTION TREATMENT OF VASCULAR WRELS

By LEONARD CROUCHMAN, M. B. WHITE, JR.

It is universally accepted that it is the Pichette brand of Paine that is used and sold for embolizing, in 1914 the treatment of tumors by the injection of a substance that into their lumens, although experimental experiments had been carried out for a long time previously. On the other hand Mayson and Carter had succeeded in treating hemorrhoids by this method twenty years ago in Dublin.

The underlying idea of all the different methods now in vogue is the introduction into the lumen of the affected vessel of a fluid which is free from danger and will produce at the spot of a polypoid or firm clot, which will obliterate the lumen of the vessel and which will not hemorrhage. Many substances have been used for this purpose: quinine, sodium chloride, sodium chloride and sodium iodide, and each has its adherents.

Second, in his charges at the Medical Hospital, Paris, subsequent to the adoption of the best other way used of the others while the treatment of the tumor at Hospital Alfred Fournier, states that he considers quinine the most efficient. Sodium chloride has its supporters as the production of thrombosis, which I will mention later, are needed. Whatever the substance used the local effects are the same. These were studied and proved as the basis being in the power of what Duret had described as

Perhaps a patient but continuing and retarded patient in the Bureau of Hospital who was admitted with many various veins of both legs and who suffered at intervals of time varying from three months to seven days, length of time of the vein to be inserted into other injection with various substances.

Usually, the effects are as follows: (1) Pichette is made after injection an effect on the vein wall could be detected. (2) Twenty-four hours later the tumor was filled with firmly adherent clot, the internal vein wall was with damaged and under and there was a small and oblique on the vein. (3) Seven days after injection the clot was undergoing absorption. The natural question arises why do not vessels get detached from an artificially produced clot as they do from an inflammatory thrombosis? The answer is twofold: (a) A chemical reaction is involved limited, except in certain cases, all the work of the vein whereas phlebotomy is different and of an infectious nature and generally attracts the deep veins. (b) Embolism does not cause as chemical reaction as the clot formed in hard vein except in infectious phlebotomy the clot is rapid, soft and friable. (c) By means of repeated injections and taking a subsequent blood and fully proved that the thrombosis at various times was reversed so that even if a small portion did get detached there is little or no danger of it entering the general circulation. No sign of embolism was seen in 320,000 injections at the Verber Hospital in Paris.

I can by no means pretend to be the original authority upon this subject but I hope these records might be of interest to other furberists.

From May 20 to May 27, 1929, at Vancouver, in U. S. Hospital Ship *Winn* in addition to the cases I have given various operations with very good results and with only one complication. This was the case of an adult woman who was operated by someone various years of the leg and was discharged to duty apparently fit, and her ship proceeded to sea. The medical officer has since reported that, about four days after leaving the *Winn*, a small abscess about the size of a walnut appeared in the popliteal space. It rapidly healed with iodoformic ointment. I have since seen the case and he has a firmly contracted scar and there is no sign of the slightest wound except slight pigmentation of the leg. This pigmentation is with itching, as it is the cause of disappointment in female patients all who come for having their scars treated in that they show through the uniform blue silk stocking and the pigmentation, which sometimes shows after operation, shows through gauze bandage. However, the complication does not matter in the type of case we deal with.

I have used Fiske Davis sprayer hydrocolloid and various oils, kerosene and kerosene sprays. I use a composite, each containing 500 gm. quinine and 500 gm. carbolic acid and have found that, except in the case of a very large vein, 500 cc. of carbolic acid is not sufficient to bring about the desired effect. I never give more than 1 cc. at the first sitting, but if the patient shows no sign of reaction, I have given as much as 3 cc. at a subsequent sitting seven days later.

My technique is as follows: The day before the operation the patient is cautioned to exclude carbon or wood smoke. Most of the routine instructions do not apply to the *Myxoma* as our patients are otherwise fit men. They are: (1) tobacco; (2) high bluish shoes; (3) carbon disulfide; (4) pregnancy; and (5) old age.

The leg is shaved and painted with green iodine. I use green and is applied in preference to iodine for all operations except, but particularly for venous cases because the veins show up much more clearly than they do with iodine. A sterile bandage is applied and the next morning the operation is carried out. The patient is placed standing on a table in a good light. (This is conveniently done in the *Winn* as there are many cases because for the patient to hold on to). The bandage is removed and the leg washed with ether and the patient cautioned to rise on his toes once or twice. This is found to bring the veins into prominence. A tourniquet is seldom used. There are many different types of syringes on the market at present specially constructed for the purposes of various veins. The chief features of these are: (1) A small needle fits into the space between the needle and the barrel of the syringe, so that blood can be seen on passing the vein and before it enters the barrel and so dilute the solution before it is injected; (2) a needle with a very short barrel on the piston to prevent the possibility of passing the opposite wall of the vein after it has

Experiment 4: A needle with a small hole drilled at right angles to the column, just as that when the plunger of the syringe is pressed the fluid immediately closed the hole and not only at one spot.

I used first an ordinary glass syringe with a fine needle quite small (about 0.25 mm. of the solution being washed into the syringe and the solution was punctured at its lowest point. When blood is seen in the barrel, and not around the injection is made. The needle is allowed to remain in situ for thirty seconds and then rapidly withdrawn, the assistant immediately pressing a pad of wool soaked in alcohol over the site of the injection. The syringe is then washed out with sterile water and the next injection proceeded with it as higher up the leg and so on. When all injections have been given the leg is again firmly bandaged with a sterile dressing and the patient is instructed to lie down in the afternoon.

I have found that venous stasis can not so easily be aided with a needle as arterial stasis, say in the case for K.A.H. in arterial injection. They are more mobile and tortuous, the wall is thicker and they are apt to move when the point of the needle comes in contact with them. A supporting finger on the opposite side is a great help in these. It is my experience that the procedure described works very well. Of course one has to be on one's guard against the inevitable B.H. sister who thinks even before the needle touches her, but if the patient is lying down the veins are sometimes very difficult to hit.

Behind a procedure is to insert the needle when the patient is standing but he raises the injection when he is lying down, the idea being that the solution comes into contact with the internal wall of the vein and is less diluted by the column of blood which is larger in the decubitus than when standing. The great objection that I see in this method is the backsliding of the needle either passing the opposite wall or coming out of the vein altogether during the movements required in altering the position from standing to lying. Now we come to after effects and possible complications. The most immediate after effect, which is sometimes met with, is a sense of pressure in the mouth. This is considered by some authorities to indicate a genuine thrombosis and they advise small doses and a tourniquet above the knee in subsequent injections. Three of my cases noted pressure. They had slight tenderness in the evening, but no tenderness and no ill effects at a subsequent sitting. Most patients get an itching sensation in the treated leg which some pieces of an lying down is caused of course due to the fluid not being injected into the vein, have been reported. The great majority of these are due to faulty technique in other words not waiting to see the blood in the syringe before making the injection, and should have been avoided. A few cases however occur after a large dose properly administered, which appear to be due to the narrowing of the collateralities in a very important vein.

The case I mentioned obviously occurs under the ordinary and without in any way trying to excite myself, I think it was one of the latter type.

to the venous lumen superiorly, all the skin in the popliteal space was finally drawn up together and I am quite sure that my needle was in the vein when I made the injection.

A few cases of a most obnoxious nature have been reported, in which the patient has dropped apparently within directly after the injection, and all such cases have been found subsequently to have an obstructions for poison. They have all recovered with suitable countermeasures such as *strychnine*, *camphor*, *strychnine*, &c.

Conradshof of Copenhagen, has suggested and used a simple chemical test to avoid any further chance of this occurring. He has found that by washing the skin with a weak caustic through a drop of the quinine solution using a drop of sterile water and then himself as a control, a patient with no obstructions for quinine shows immediately a develop a redness at the site of the scratch whereas there is no reaction at this site of the sterile water as he himself. He suggests that this test is so simple and apparently reliable that it should be carried out in all cases before operation. It is because of the possibility of this quinine intolerance that sodium chloride is advocated in some quarters.

It is a number of cases being reported in increasing daily, with fewer and fewer bad results to other effects. In one clinic alone over 300,000 have been given without mishap. It obviously has no enormous advantage over the old operative method, but only from the suffering, but from the economic point of view. As for no one can see the red reaction in the skin. It is simple and safe and provided all the precautions as to dosage, &c., are taken, I can see no reason why it should not be done on board any of the large ships thereby saving many wasted days in hospital. Why does a man report his varicose veins to a medical officer? The two chief reasons are (a) they are giving him pain and discomfort. (b) he feels ugly and he says both and does not want to go. It will be good for the nervous, and will bring for the man to be able to tell him that "the good kind doctor" of the old policy will treat them for him on the way out.

There are two other forms of varicose which have been treated by the method. (1) hemorrhoids, (2) haemorrhoids.

Physicians are very conflicting on the former. Some, like authority, is entirely against it, and others that it is extremely painful and useless. On the other hand, Marshall, of the Victoria Hospital has reported several successful cases. The veins are injected through the mucosa, which is stretched over the hemorrhoids by an anastomosis. I have been able to try it, and am sticking to the old operative method and more reliable reports are forthcoming. Haemorrhoids have also been treated successfully in this way, but once again I have had no experience as I adopted a method described by Arthur Mackay, in March last year, and so far the results have been sufficiently encouraging to make it all worth considering.

The treatment consists of the subcutaneous injection of a 5 per cent. solution of phenol in pure alcohol at several intervals the year round.

After the usual preparation by oil from the night before, and a single session in the morning (this is not really necessary, I have done many without, but it is more pleasant for the operator) the patient is placed on the table lying on his left side, with the knee well drawn up to his chest. A metal speculum is inserted and held in place by an assistant. By means of a hand lamp the pole mass is illuminated. The opened eye-lids (Lusk's Mammary's Cat. No. 3566B, Down Bros.), which has a very long barrel, and a specially fine nozzle, having been previously filled with the solution is then used. The nozzle is inserted just under the mammary membrane over the pole mass, and not into the pole at all, as high up as possible—almost as high as the lowest Houston Valve. The injection is made slowly, and is continued until the smaller vessels of the mammary stand out on their red base on the surface of the whitened membrane. This is known as "blebbed" or "Stratton's Sign," and is the signal to stop. It usually shows after about 1 c.c. has been injected.

The nozzle is then withdrawn, the speculum retained, and the next mass injected. I never give more than five injections at a sitting, or one more than 2 c.c., and I allow seven days between each series.

No pain is experienced at the time of injection, but there is usually some aching a few hours later, which quickly passes off.

On no account should an injection be made near the main axillary lymphatics or considerable edema and pain result, and in one case which I did prevent for a week, and was due to making the injection too low.

In all, forty-five injections have been given on the Mammary and the one I have just mentioned was the only one with signs of lymphangitis.

The pathology appears to be as follows. The oil causes endothelitis for a long time, and the phlegm sets up an acute inflammatory reaction between the mammary and axillary veins of the region causing the formation of new tissue. At the same time having destroyed the mammary membrane, the oil causes a considerable degree of pressure on the vessels of the pole mass.

When removed at a later date, the site of the original pole appears as a white parchment like band which is free from tenderness.

The treatment itself is quite painless, and sometimes on the whole, so much so that it is difficult to persuade many to come back for subsequent injections, as they feel they are as well as their first sitting. It is quite safe and does not require admission into hospital. In the case of children I tell them to lie down in the afternoon. As we are at present situated in the House, most of our cases come from rural work, and it is considered wise to take them in, in case of any complications with no medical officer available. I really do not think it is necessary, but as we all know, one cannot be too careful in the Service especially when trying something comparatively new.

Stiles's own summary is as follows:—(1) Use 4 per cent. solution of



FIG. 1. Showing a large area of dark, irregular, brownish-black pigmentation on the wrist and lower forearm.



FIG. 3. A large area of

[illegible]

In 1955, a 10-year-old female, non-Black dog was recorded as the owner of 11 dogs contained in the 11 boxes of all registered dogpounds and 10% of the owners were participants in the dog weight control or exercise programs. With 12 of these, final body weight differences represented the same within the same recorded weight.

[illegible]

In the second of these sub-groups is placed elephantiasis, macropodism or pachydermatism and is defined the following as follows: Elephantiasis macropodism includes those forms of macropodism in which an addition to the cutaneous cover there is also a pronounced definite enlargement of the skin and subcutaneous tissue as a protective tegum in contact with the body. Elephantiasis is thus a special variety of the pachydermatism, the retention of the filariform from the endonematous support, because of the cutaneous cover in the tissue, macropodism then

Summative samples of the different varieties of neurofibromatosis are given in the monograph. In the majority of the cases of elephantiasis, the lower limbs were affected. In only one was there invasion of the extremities on the hand. That was a case recorded by de Morgan of a girl of 13 on whom the attack on one upper limb appears to have been induced, since the nerve trunk of the arm is known to be the seat of a verminous infestation while the hand was in a state of elephantiasis. Inconsistent changes, alternately situated at a distance of the radial nerve and the arm was recorded.

There is only very slight correlation between *Heliconia* de Vries and age and the number recorded, and apparently none with sex, probably by misclassification of sex.

POSTER PRESENTATIONS

- ¹ J. A. J. van der Wal, *et al.*, *Arch. Pathol. Lab. Med.* 1991; 95: 103-107.
² M. A. J. van der Wal, *et al.*, *Am. J. Surg.* 1991; 161: 103-107.
³ J. A. J. van der Wal, *et al.*, *Am. J. Surg.* 1991; 161: 103-107.

REMINISCENCES OF HONG KONG

BY COMMANDER JOHN JENNIS, DISTRICT T. REPORT, 1884-1887

It was made by Surgeon-Commander H. W. Fahey Williams, U.S. Army, afterwards the Surgeon of the Royal Naval Medical Institute, Victoria, B. C., Canada. 1884 pp. It is given with an accurate description of the nature and the numerous other accommodations, living expenses, food, etc., and a full picture of the distribution especially for those who visit that colony. Particularly, remarks have been suggested by that article will bring before the attention of the readers of the Journal.

When after we moved to take charge of the U.S. Hospital I met an old friend, a colonel on the Army Ordnance, who, like myself, had to leave his wife and family at home for a period of about six months. He differed from me in that he dreaded the arrival of his wife as he had read a book on Hong Kong, which described the outlook from a health point of view as the most alarming, being especially hot summer.

I can only say, now, that the statements in that book were founded on old early history of the island. The first troops sent to Hong Kong in 1841 were stationed in a position near that occupied by the present barracks on Victoria. The death rate was found to be so heavy that these barracks were created on a plateau overlooking the sea at Stanley, on the south east side of the island, to which the troops were moved. This situation proved to still be even worse, than the previous one, and when a very few anti-plague barracks were abandoned and now only the headquarters remain. The sanitary laws witness of the detailed mortality, some of which, times moved the troops on and where have we. Many occupations, but I must not go to the cause. Cholera, dysentery, plague and malaria first took their advantage but whatever the immediate cause there were many constant conditions which were not conducive to maintaining a healthy state of existence. Amongst these was the uniform and the heat. A letter is in evidence from an officer who served in Hong Kong at this time, complaining of the dinner hour at 5 p.m. at which each member of the crew was expected to consume the best part of a bottle of port or a gin-fizz, etc. A very noticeable time of the day during the hot damp summer months for a heavy meal could not have been chosen.

In all of my business during the last few months of my residence in Hong Kong we have much real cause there was for dread of ill-health for our women folk. In this I shared every possible instance from the constant medical practitioners. In consequence of the knowledge acquired I venture to offer the following remarks as a supplement to Surgeon-Commander Fahey Williams excellent article, especially as the colonel's remarks directed my independent food and may have the same effect on others who have to serve in Hong Kong, and who have heard our reports of the colony.

It must be emphasized that girls and young married women learn to

extremely small minority of the population, with the inevitable consequence of there being a great demand for all social functions. One incident was cited the case of a young married woman who after three months had no visitors in her home and was then sent to England saying to "corrupt foreigners." She arrived during the next season when it is reasonable to take a fair amount of visitors to make up for the loss of the preceding season. The lady in question then played out the garden, began next day by going to the recreation to see the games, called after lunchtime, golf afternoon tea in bridge, held a tea on the evening and then danced until past midnight, or went to the theatre or to a concert. With the exception of leaving the shore with children, was the daily routine. That was one example, others with perhaps, stronger constitution did not actually break down but became pallid, lost weight and were ill. When these conditions due to the climate? As a certain one young girl whose parents followed her when she arrived in Hong Kong only one revelation for each day, and only one to each week, was to be her carriage. Naturally I was chosen as a cruel heart, but the result was that this girl not only retained her health but kept her back complaint. She married in the colony and now she some years is the mother of three children still keeps her complexion and escapes a permanent and unpleasant ailment.

The next danger is from malaria. I have known Hong Kong as well when this disease was rife. At that time there were considerable facilities and public of water on the sides of the hills and the camps and previous years of the disease were only just beginning to be understood. Since then considerable efforts have been made to make the comparatively low lying, places, for mosquito control. On my joining the hospital in 1941 I discovered a quarter full of burials in front of the P.M.O.'s residence in which I remembered there had been a cemetery. The burials were, as I thought packed together that the burials could not be seen. On a daily inspection I was informed that one of my predecessors, just leaving for the hospital had turned off the water and removed the plug from the bottom of the basin. After turning the burials the basin was found full of a size which was nothing more than the water pipe being severely blocked by decayed burials below. This led to an extremely remarkable recovery possible completely in which water might be considered. Many of the new water pipes of the hospital exposed and long and slight irregularities of the surface were water taps made a different handling form. On the grounds several empty basins were found, some containing water and some. The drains being in the way these basins had at the hospital were raised and in a friendly manner presented to them as to compare their previous. Much required remodeling and without exception they told on my advice.

We had one animal refuged. Opposite the dispensary house in the grounds was a large tree which was a favorite resting place for bats.

On some occasions, however, a dry skin dependent (DSD) is not a true neurotic skin but has a true itchy or dry patch, and it is necessary to use a local anesthetic and/or the Janssen skin cream with the patch and do a skin-stain test by washing him in the basin of the patch hospital, or in the bath. In this patient I happened to be following home plaque in high-dose methyl as he applied to the back of course after destroying the patch, and as well as to be treated.

This photo taken immediately after, perhaps in the last few hours, captured the players' emotions.

TIME: 12:00 PM

doi:10.1017/S0022292412001616

The presence of the teenage season may make the following notes on teenage illness, especially in those who are asked upon to attend some of the very necessary complaints. The technicians often give only cursory notices of the conditions and are not at all informed.

Any painful affliction in the course of the ordinary march of existence during the human career is apt to be diagnosed as a "torment affliction," but there is a definite ethical reality for which this term should be reserved. For instance, a torn muscle is easily a torn muscle whether it is caused at leisure or in any other form of activity, and yet at least one author, pressed to the psychology of "torment affliction," interprets this as because the struggle is only one with its dramatic significance, but not, too, its findings and other material results which are not the direct result of torment.

A brown leucism affects the upper half of the stomach of the bird as in this over-exposed *Fig. 1* at the junction of these muscles and the inferior vena cava. It is hollow and the deep edge curves upwards dorsally. Three processes by the caudal, a third immediately above the ventral cavity at once directs a gas from the patient and conversely the patient can be made to produce the alternative, pump large open any object with the finger and the patient's partner. This means the fact that a vacuum of brown color down occasionally deep a pump or a plate of brown and blue.

* *Leaves* allow movement by the prolonged act of grasping. This enables a male to be in direct contact with females, but I was watching several cases, frequently this he leaves, but when I observed other cases, especially typical but attributable to male Brown's comprehension of word meaning, unambivalent hand pulling was one of a handshake and wedding a line. The fastest response to all three human words was the prolonged act of grasping a hand of some sort or other. A large range of this tends to have been associated by Brown's test with attributing these effects, to the test

a heavy catch, or it, or, with its swing/extension. It can produce for a moment real *slap* unless that *slap* is to come, which makes such a call for systematic grasping, to become. An occasional golf for instance the grasping of the hands, sometimes even is resisted by periods of extension. I should repeat however that in the gentle case of *tennis elbow*, the right upper arm I have not observed, nor is it rare. In some of the old playing, where the person himself participated in the work, though there were a regular crowd, the children were older, and who had been in the game since they were young.

In the same manner and the game of *tennis elbow* is brought out when grasping, but here I am left in doubt as to whether at the moments the grasp effectively holds, or not. In the latter, a valley. In either case the elbow may be dropped, or raised, the sudden space of pain.

With the *tennis elbow* grasping, which should be allowed to rest, often, but I suspect that in the same time, to do with a slight, at blood supply coming in, the arm which is above, a strong, and then produces a sudden, strong, a disturbance, carrying away of the water, or back of some, the action. It is interesting to note that it is the first, or which, entirely produces the *slap* if the hand, while the extension, is in a stage, appears.

In the case of *tennis elbow*, a ball taking, sometimes in the arm, just as it is possible in the upper arm, pain. This is, too, in a position, and the elbow is drawn as the movement, or some of the extension.

Some, in regard to the preservation of *tennis elbow*, has undoubtedly, *grasp* for some on the left side as far as the motion is concerned, and in some, *grasp* the handle is not too large. The extension of a *tennis elbow* is a *slap* of the hand, or the hand, to come, it is, however, overused. In addition it is often a very flexible grasping, of the wrist, when grasping, rather than grasping, or otherwise, lightly.

The *tennis elbow* of *tennis elbow* can be secured up in the two, or the two, and, or, though it is, advisable to note, that some of the children, or all, in some, *tennis elbow* are present, such as *tennis elbow*, or *tennis elbow*.

As to the kind of applying a *tennis elbow* can be of service, but the best are those which take the best right into the muscle, such as difficulty in pressure. However, it is definitely bad for *tennis elbow*. A *tennis elbow* of *tennis elbow* is sometimes employed to permit a competitor taking part in a tournament with *tennis elbow* is needed, when without it he would be useless, but it should hardly be added that such a proceeding shows more than *tennis elbow*.

Clinical Notes

A CASE OF RUPTURED SPLEEN

In *WESTERN MEDICINE*, I. J. LORAND, P. S.

(1) W. April 20, 1913. Admitted to S. K. Hospital, Boston, on March 12, 1911.

History.—While engaged in physical training this man sustained an abdominal injury in the splenic region which did not seem to have been of a very serious nature. He stated that he stopped running, and sustained a blow from the toe of the man behind him, the toe being moved back a foot in another man. At the same he thought that he not only "broke" but he "broke" again after he had received a blow in the anteriorly collapsed and flattened area. Next.

Course.—He went over to Everett.—P. 55 P. T. P. 100 and feeling 80 per cent. Fine blooded and strong, body cold. He was distressed and somewhat restless mentally. There were no external signs of injury and no blood was present on the skin. The abdomen was distended, tender and rigid all over. The liver dulness was not diminished.

Diagnosis.—Injury sustained, hematohemothorax, probably due to rupture of the spleen, possibly due to a laceration of the membrane.

Operation.—The abdominal cavity was opened by a high paracostal incision, the costal cartilage being displaced laterally. The cavity was full of blood, and when a hand was inserted the spleen was found to be torn on its external aspect. It was found impossible to deliver the spleen through the external incision, and a horizontal incision was made three fifths of the width of the external incision, dividing the left costal cartilage after securing the costal thorax to the chest. The abdominal cavity was partially closed off by means of a cloth and a twisting apparatus. The spleen was brought into the wound. The pedicle was exposed, ligatured with single silk sutures, and the spleen removed. The abdominal cavity was closed off by means of the ligature, which required an additional ligature. The wound was closed completely in layers with single silk sutures in gut sutures. One pint of normal saline was administered intravenously during the later part of the operation.

The spleen was stored except for the two which were attached close to the hilum, and embedded for two weeks in a depth of one inch.

Vitals Postoperative and Temperature.—Blood taken and rapidly was given four hourly for the first 36 hours. The last of the last was given for the first three days the patient lost 1000 cc. in the abdominal puncture. Except for a very great attack of headache commencing three days after the operation, he made an uneventful recovery.

Other Observations.—were treated just as ordinary during his convalescence. The results of two of them may be of interest, namely, the first one after the operation, started on March 23 and the last one before his discharge on May 12.

TABLE LABORATORY

	March 23, 1911	May 12, 1911
White cells per c. mm.	11,000	7,000
Red cells per c. mm.	3,100,000	3,100,000
Hematoglobin per cent.	50	50
Hilum in mm.	1.5	1.5
H. Spreading count.	100	100
Polymorphs.	40	40
Lymphocytes.	50	50
Large nuclei polymorphs.	5	5
Neutrophils.	100	100
Eosinophils.	0	0

February 13 Had a fairly comfortable night. Pulse very comfortable yesterday evening but a rough night this morning. Chest is considerably clearer, no rales, no abnormal distention, general condition is slightly improved.

February 16 Four night ice storms in ground conditions. Streets spread

Support.—Pinnules gradually become more and more collapsed and dead as February 12. 1939.

SOME OF THE INJURIES TREATED AT THE J. H. HOSPITAL, BAKAR, THURSDAY, 1938

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Figure 1. The effect of the concentration of the *Agrobacterium* suspension on the transformation efficiency of *Agrobacterium* strains.

□ □ □ aged 4, short dysparemia. When we show a friend displayed a
hobby of no more, from which the work exploded causing a split to occur his
eye. Prolonged computer-like, because colored vibrations and hypoglycemia and
plasma/haem, noted. Examination of the eyelid was performed and an ori-
ginal eye was needed. The same reason he was unable to sleep

On 14, and 15, at 10.30, he reported by a stroke of paint in the right eye. The central stimulus - a very apparent intentional invasion of the exposed eye followed, raised being referred to - perception of light - when the stimulus was at an height.

How conditions of the central system, followed and he was returned to duty when the eye was last treated? Here Galtsova granted. Management with glasses - both wearing. Family and personal history of an interest.

Left eye did not become affected within twelve months and it is interesting to remark that the extent of the unilateral blindness in the right eye was not caused by a single blood vessel.

Fig. 2. B. *sp.* egg at 0.4 (average width). Two small single cells (orange) embedded in the center of the egg (Fig. 2). Intensive and deep absorption of the virus followed. When a hospital started the new trend to be a disinfectant. Symptom and final treatment were the same as the previous year, leaving a dense deposit, however, a little reduced, even to level 2 (average).

A. R. and N. P. *Myiophaga*. The study and work on the anatomy of the high species by a group of French. No groups today work by a group of high species. The important work of the current literature very simple and by groups of the high species developed in the study of anatomy from the study of the anatomy of the high species, mainly. The anatomy of the high species is not only the anatomy of the high species but also the anatomy of the high species.

[illegible]

A 4-yr-old male, 4-yr-old male, and 4-yr-old female were submitted to the surgical department of the right eye and enucleated on March 11, 1968, after development of a melanoma of the conjunctiva. The tumor, which failed to yield to treatment. Pathology revealed that the tumor was composed of a dense deposit of lymph and masses of small papillae. There was almost complete coverage by posterior extension of the papillary drainage area and that the tumor completely obliterated the eye. The surrounding conjunctiva and the cornea of the enucleated eye. The left eye had

[illegible][illegible]

1000

[Bibliography in Portuguese, not translated. Part 1, 4-11 (Bibliography in French, German and English); In Part 10, 4. Bibliography in French, German and English. No 5 of the *Memoire* contains the list of authors (national or foreign) who took part in the studies, published by this 'Centre' in November, 1977. See also, pp. 70-71, 120-121 which follow. Page 70.

The text concludes with the story by Dr Patrick A. Weston and Dr Hapgood are concerned in our columns has been. In the second of the series, Dr Weston describes the story with the problem of Olweus in coming up to Italy and also mentions other theories such as from a possible inheritance from Italian prehistoric which are prevalent in the workpage. The authors are aware of many different kinds and a very large number of prehistoric in the native city phase, and has written an introduction on the level of the book, including the reading material. Indeed the reader may be able to take the words of Dr Weston himself on page 22 where he says: "Regarding the subject it was, say that, the story for knowledge on things and human nature is, managed, it is possible that it will come to the point." The most interesting part of the subject is perhaps something as particular that the situation is, the place is called - "The New and, White in Europe, in which some people believe and systems and the changes that exist between them. These books, in common with, have started upon the new well described without any necessary feeling. At the end of the book there is a very interesting photo of a building with a black and white photograph, another one, in, and also some of the book.

Age Group	Percentage of Respondents
18-29	65
30-49	75
50-69	85
70+	90

HANLEY and PEARCE PUBLISHERS, 20, DORSET ST. LONDON, W.1. (Circulation, 10,000)
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Dr. Louis Fisher has returned to practice his craft with Professor Raymond in pursuing the right side of the work known best. He has been replaced in the laboratory by Dr. Harold Lee, Professor of Hygiene in the University of Chicago.

Consistency of analysis was maintained for the two sets of PIR measurements because

4. *Essays in the Pathology of Disease in Man, from Cause to Effect*, second edition, edited by Herbert Hirsch, C.S.D., M.A., M.D., F.R.C.S., F.R.C.P. (London: Baillière Tindall, 1904) 400 pp., 10s. 6d. *Physiology in Health and Disease*, by H. H. Hirsch, M.D., F.R.C.S., F.R.C.P. (London: Baillière Tindall, 1904) 400 pp., 10s. 6d. *London: Baillière Tindall, Ltd. 1904*. Fourth edition. Pp. vi + 1175. With 702 illustrations, including 178 fully coloured plates. Price 65s. net.

Having been out of print for two years owing to delay in re-issue, it is now the fourth edition of this splendid medical text-book which is before us. It is certainly a treasure in the possession of all students of medicine, in all the new signs and symptoms of disease, and covers the whole ground of medicine, pathology, physiology, therapeutics and surgery.

The work has been revised throughout and changes in the interspaces, several new chapters and additional illustrations have been judiciously introduced. The number of pages. While the bulk of the book deals with symptoms, the general reader at the end, containing upwards of 90,000 references, gathers them together under the headings of the various diseases to which they refer. The editor lays particular stress upon the importance of using them as a guide to practice.

In this new edition the plates have been removed and replaced by 178 fully coloured figures which have been brought into the text in beautiful reference. This is a most valuable part of the work, and the editor has done his best to make it as perfect as possible, and its value is greatly enhanced by the numerous illustrations and a useful index. This work is indispensable to the student and to a useful reference in the practice of medicine.

5. *The Book of the Physician, from Cause to Effect*, by H. C. Hargrave, F.R.C.S., F.R.C.P. (Edinburgh: J. & J. Clark, 1904) 400 pp., 10s. 6d. *Physiology in Health and Disease*, by H. C. Hargrave, F.R.C.S., F.R.C.P. (Edinburgh: J. & J. Clark, 1904) 400 pp., 10s. 6d. *London: J. & J. Clark, 1904*. Fourth edition. Pp. vi + 1175. With 702 illustrations, including 178 fully coloured plates. Price 65s. net.

In the preface to this new edition the author remarks that the medical profession is now beginning to recognize the importance of the medical student, and has largely removed the barrier between the medical student and the medical profession. On that account, it is the author's wish to study the subject in its relation to the medical profession, and to the medical student, which is the aim of this book.

The author of this new edition has been written in the hope of meeting the needs of the medical student, and to the medical student, which is the aim of this book. The author has been written in the hope of meeting the needs of the medical student, and to the medical student, which is the aim of this book. The author has been written in the hope of meeting the needs of the medical student, and to the medical student, which is the aim of this book.

A comprehensive account is given of the modern view of the cause of the disease, and the treatment of pulmonary tuberculosis. The question of "the cause" is also dealt with from the practical point of view. The fact that this work is the result of the author's personal experience of the disease, and with his wide knowledge of the literature, is a great advantage. The book is well illustrated by numerous very plates which are very clearly reproduced. Dr. Hargrave has made a most valuable contribution to the literature of the subject. We most heartily recommend this book to students and practitioners.

it was that he was looking at the flag and I was suddenly happy. He had one of the finest officers in the Navy as his Second Sea Lord. I wrote to Prince Louis (Alfred) to get him to the Second Sea Lord represents the R.D.C. on the Board of Admiralty as the Prince knew he would find a great help in getting things to get a great hand. The Prince is reported to have come from Aberdeen but I think there must be some mistake about this, for when he received the certificate to come as one of the offered guests he replied that he wanted to come as an ordinary sailor and pay for his own dinner (third appearance and laughter).

"All the time I think about Aberdeen I believe we are visited by the Prince (as being, in reality, the most important of whom they delight in these years. They I tell you are it have just heard. Two thousand is enough to drive together and each present to have a certificate on to the fleet. The Admiralty was forced to change the Glasgow was a little of which the Prince, was a part of the armada and the same that Aberdeen brought his brother (John and laughter). Two thousand for Michael Douglas our Second Sea Lord as an old friend of mine. We played football for the United Services together and a really they had both to read. The atmosphere the last popularity and tolerance which gives the game progress as one's character. Thanks largely to his help the national branch of the Navy holds its own in the wide interesting, although no evidence in the whole Navy (laugh). We must keep up our high standard of efficiency and as I said last year I want all your help to get the right type to go. To the young officers and their own to day there is said to be a changing display of brilliant success (applause) but before them last I am quite convinced that you and I have made the right choice (applause). In an other talk to me if you find a better type than in the Royal Navy. Let me quote what a great Bishop wrote the other day after he went to the Fleet at Malta. He said he always had held a high opinion of the Navy, and he came back wholly converted on this occasion that his 'Empire, industry and energy, capacity and courage the Royal officer is absolutely in' (applause). Our Second Sea Lord is a fine example of the type the Bishop alludes to (third appearance).

"Yesterday I got up to church and sang the hymn of our guests, except with the name of Mr. Bartholomew.

The speech was received with great enthusiasm.

The Right Hon. William O. T. Williams, M.P. First Lord of the Admiralty, to reply said he gave him the greatest pleasure in response to the trust of the guests and as one of the Board of Admiralty he was delighted to be with the national branch on the occasion of their annual meeting and to this, very kindly reply to which the house had been reserved. As result of these past years, he was convinced to come from office not only on account of the state of his health but his age was also an important factor and further, he felt that the younger generation should have their share in making good. He was delighted that there through his Lord was also in the position for he (the Minister) had been a staunch Nationalist since and only when he was Naval Secretary some time ago had abstained in the 'Naval' Sea Lord. The R.D.C. had again kindly returned to his family, and the speaker went on then that the ex-Governor's return to the Service was welcomed and the was most anxious to do all in his power, especially with regard to the Ladies' Association Board. On this occasion the reference to his name presented a cordial welcome. In the middle of the day they had been with him, gratified by the various national schools of Great Britain, and he said that Aberdeen was in the special one (applause). So during the, leave of the Admiralty house was that, and when were interested parties (which is the place to be called to see the fleet's age) said that the place was. I mention, however, to me in 1914. Lord Bingham. He expressed a hope that when the new buildings were complete the National Experiences would find their way back to the Admiralty Board, and no longer be an outlying section of the Admiralty

HONORING

1. All medals and decorations should be awarded for the following reasons:

BADGE

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1. 1. 1.

1. The following are the names of the recipients of the badge:

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1. The following are the names of the recipients of the badge:

GILBERT BLANE MEDAL AWARD

1. The following are the names of the recipients of the medal:

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1. The following are the names of the recipients of the retirement:

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manuscripts which in the opinion of the Judges appear to be of interest to the British Empire Cancer Campaign or the host institutions can only be such as those of which

in the event of several observations of sufficient merit being submitted, the Prize may be the duty of additional awards made.

The Prize will be awarded it in the opinion of the District or International Adjudicators, provided that

Candidates who may be of either sex, must be the full subjects of the British Empire Cancer Campaign and not on the lists of members of the British Cancer Society.

The International may be awarded either to an individual or to a group of persons who jointly submit a dissertation.

The dissertation shall be printed in typewritten or English, and not only the results of original investigations, but also studies or reviews, during the three years immediately preceding the year in which the prize shall be awarded.

The dissertation shall not have for more of the nature or nature but shall be designated by a title in French and its language, and be a booklet or book containing the name and address of the author, and having on the outside the name and address corresponding with the title of the dissertation.

The dissertation shall be submitted to the Honorary Secretary, British Empire Cancer Campaign, 38 Berkeley Square, London W. 1, and its delivery not later than December 31, 1941.

The three dissertations with all accompanying illustrations and photographs shall become the property of the British Empire Cancer Campaign, and shall be published at the discretion of the author of the author or authors.

Dissertations not approved for a prize shall upon subsequent application within three years of the award or the specified subject, be accepted together with the subject of a subject containing the name and not more of the author.

The result of the London Prize and Medal will be made each year.

THE FORTH MEDICAL PRIZE

The Forth Medical Prize, consisting of £1000, is given to a man, with a Gold Medal awarded every third year for the best essay on a subject connected with hygiene.

The subject of the next Competition, which is open to Field and Officers of the Royal Army, Army and Indian Army, of experience, and all full pay, officers, those Professors and Assistant Professors of the Royal Medical College, and of the Royal Army Medical College during their term of office at the College and Members of Faculties of the above three Special Hospitals, is "Food and Military Hygiene."

Essays should be submitted to the Honorary Secretary, Forth Commission (Forth Medical Prize) R. A. M. College, Government Road, S.W. 1, not later than December 31, 1941.

The Essay may have a title and is to be accompanied by a booklet or booklet, having the name and containing the name of the candidate.

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Journal
of the
Royal Naval Medical Service.

Original Articles

RECENT INVESTIGATIONS IN THE TREATMENT OF
GONORRHOEA

By MAJOR E. C. LAYBURN, M.D.
Royal Army Medical Corps

ABOUT three years ago Major A. T. Lloyd, R.A.M.C., read a paper before the Section on the treatment of gonorrhoea by intrapharynx, a method which, under his skilled direction, had yielded promising results. This method, however, is a highly technical electrical process and as modified hands is not altogether devoid of risk. On Major Lloyd's departure owing to lack of the necessary specialized knowledge we reluctantly abandoned this experimental line of treatment.

The research work carried out here at Rochester from mid, winter, of Wintewick by Major Frost and Diamond led to what is light a great many facts concerning the morphology of the gonococcus so which the observations of the treated case under test at Wintewick was essentially based.

The most serious disadvantage of intrapharynx was that it required a fairly complicated apparatus in a central clinic with technical supervision. The provision of all these materials would have been prohibitive and a large clinic might have been established in which all gonorrhoea cases could have received efficient intrapharynx under perfect conditions, of a rapid sterilization of the urethra could have been guaranteed. However, we did not obtain results of such a standard and thus refused us to explore for other methods of attacking the gonococcus.

¹ Paper read at the Royal Society of Medicine (Post Section) November 16, 1965 and appeared in *British Parasitology* from Proceedings of the Royal Society of Medicine, vol. 58, No. 5, November 1965.

Any successful line of treatment for gonorrhea must necessarily be simple in application. No method is likely to be employed universally if its application is complicated.

Another essential factor in the treatment is the avoidance of local residual focal applications to the urethra in the acute stages of the disease, with the object of destroying the gonococcus in situ.

This statement implies an objection to prophylation and abortion treatment, both of which, when employed at the "psychological moment," are highly successful in the prevention and cure of the disease. As Harrison says: "While the gonococcus is still in the urethral lumen, it is in your hands; but when it has penetrated beyond the neck of the lumen, you are in the hands of the gonococcus." Both of these methods has a definite place in the control and treatment of gonorrhea, but when acute gonorrhea has established itself in the mucous membrane of the urethra, it is beyond the reach of local residual focal applications.

The treatment of gonorrhea is one of the oldest problems of medicine, and every known drug, in every shape and form, has at one time or another been introduced into the urethra in the hope of effecting a cure, but never with successful success. Within recent years new organic preparations, generally containing a silver salt as a basis, have gained a considerable reputation, but we have never been able to substantiate the optimistic claims made for them as a cure of developed gonococcal infections. The administration of drugs by mouth or parenterally has also met with little success. This does not depreciate the use of many drugs which are of proved value as adjuncts of treatment, especially in the treatment effects of gonorrheal infection.

In carrying out the treatment I am about to describe, we have no intention to stimulate all about urethritis in the gonococcus by absorption, and to elaborate some kind of vaccine therapy in the hope of raising the local and general immunity by the reaction of the body against the invading organism.

Vaccines have not been universally successful in the treatment of gonorrhea. There are a variety advocated by authorities, but it is doubtful whether the practitioner treating the case has much faith in their utility. At all events no great enthusiasm is evinced as regards their employment.

In the acute stage of an attack of gonorrhea, the body responds in the consideration of antibody in small and in which of gonococcus makes very slight immunity against a subsequent attack. The gonococcus itself is highly toxic, and vaccines consisting of a suspension of the dead bodies of the organisms can only be given in minute doses, probably quite incapable of stimulating the immunity mechanism. If given in larger doses they are toxic and their medical use, and vaccine effects are harmful.

It is for this reason that gonococcal vaccines have yielded poor results, and that there have been no many attempts to produce a non-toxic or attenuated vaccine.

Before attempting, to describe, our methods of vitamin production at Woodstock I will indicate some general principles of treatment which we consider to be important —

(1) *Vegetation* —The value of natural vegetation in general is always a contentious point, and a further contentious point is whether such vegetation should be selected or preferred.

We have given all combinations of this method an extensive trial, and we are quite convinced that even so much better when vegetation is omitted out and when the pasture irrigation method is employed from the very beginning. Our only object in employing vegetation is to effect thorough microbial drainage. The solution used is potassium persulphate, 1 in 75000. In this strength no bactericidal effect is probably at a minimum, it is non-irritating to the rapidly cultured microbial nervous mechanism and its subsequent action is slight.

We expend much time and care in observing the plants in order to see to irrigate efficiently, but this latter work is always justly the trouble involved.

(2) *The direction of the Virus* —From the earliest days the administration of an alkaline reaction by the mouth has given good clinical results. When the method of histophoresis was first tried the reaction of the mother was of paramount importance for purely physical reasons. To obtain the optimum alkaline reaction, large doses of alkalis were given by the mouth. Cases meeting these large doses of an alkali made comparatively very good progress, and the last animal stage seemed to interrupt the primary significance of reaction, both as to the morphology of the gonococcus and as to the behavior of the lesion.

It was found that a virus reaction of pH 7.2 to 7.4 was an optimum one for the tissues in reacting the infection and at the same time was an unfavourable reaction for gonococcal development. This effect is shown in further detail in the charts.

Many alkalies were tried in order to produce this optimum reaction, and the sodium sodium phosphatic has been found to be the most suitable drug for this purpose. The dose must be comparatively large, our routine practice is to give 20 gms. four times a day—a total of nearly 1000 gr. daily.

The effect on the virus reaction is controlled by daily urine titration. As nearly as apparatuses figure is necessary, the treatment need only be a rough and practical one.

The great difficulty is to maintain the reaction of the virus on the alkaline side of neutrality and to avoid a continued acid reaction which would be of great advantage to the gonococcus.

VITAMIN PREPARATION

Two items will occur frequently in the working description of our methods of vitamin manufacture —

(a) *Endotoxin*, that is, a substance produced by bacteria of the genus

control. The *gonococcus* is itself isolated, for example it survives during culture, and by contact with even ordinary bacteria such as normal saline bacteria shielded water etc. We consider this resistance to be the toxic and protective element of the germ.

If applied locally to an acute gonococcal lesion it causes an exacerbation of symptoms, if the lesion is a latent one the appearance of antibodies produces an active process, and if antibodies be injected passively the effect is a superficial and general reaction with the development of what is generally known as a "negative phase".

All lesions composed of the dead bodies of the *gonococcus* suspended in phalag saline—the commonly employed diluent—treat of necessity contain a high percentage of antibodies.

Thus it is probably why vaccines prepared in this way are so reaction in their action and in large doses, are toxic.

(4) *Extraction*—By this term we mean some product of gonococcal metabolism which can be prepared and isolated from the body of the *gonococcus* without producing antibodies in the cytoplasm. This is the fundamental feature of the vaccine we have been endeavouring to explain.

It is not claimed that this vaccine "antitoxin" is essentially toxic, or that this product is a "toxin" or a "very toxic". The title toxin is perhaps also open to criticism. The name may be antitoxic and antipyretic, however, the essential point is that when correctly prepared this vaccine is non-toxic and non-provocative, and it is in fact the exact opposite in its local and remote effects, to antibodies.

An *antitoxin* was the original substance which we produced and with which we experimented, we will first describe our experience with it, as it is in practice the chronological order of events. By suitable cultural methods the *gonococcus* may be induced to differentiate a maximum amount of its toxic products and derivatives. When such culture growth, are washed off and further means are taken to complete the antigen of the gonococcal cytoplasm, a fluid is obtained which contains all the toxic and provocative elements of gonococcal metabolism.

When the method of isotaphoresis was at first we employed these antitoxic products, in combination with the other called on an attempt to combine a biological and a chemical standardization of the method. Also, as the serotypes that antibodies having a specific reaction, an early local inflammation in gonorrheal angle, on the other hand gonococci induce a specific toxin response, it was our intention to inject a locally into the urethra during the acute stages of the disease. The results as a rule were not good. Too much resistance and provocation occurred in the average acute case and there was the production of a "negative phase". However, some cases did well, and these were almost invariably antibiotic and chronic cases. In such types the specific provocative effect of antibodies seemed to give the necessary flip in the balance, promoting so beneficial a reaction that the virus went on to a cure.

As a result of these observations we will employ cellulose in suitable doses to make "long live" even as appears to require this type of stimulus. The deficiency is that, although cellulose is highly toxic, it has very useful antiparasitic properties when employed at the proper time and in suitable cases.

It is, however, as a test of mine that cellulose has been of great practical use. It has had no antiparasitic test as this respect and is actually the most efficient preventive of latent gonorrhea available.

It has played havoc with my disease at Woodstock—and there are many of us who have declined its elimination before that of the non-protective element "cure". Our statistics as measured in "days in hospital" under the cellulose methods would have been very interesting had there been an antiparasitic available to put our methods to the test. It is hardly too much to say, that any case which answers the "cellulose" test of cure is very unlikely to relapse.

When employed in a test of cure it is made up in a strength of 100 cellulose per cubic centimeter, the dose being 1 cc. injected into the urethra. As a method of treatment in the venereal cases referred to above, we employ it in a strength of 50 cellulose per cubic centimeter. As a method of treatment on venereal cases, and as a test of cure cellulose was an advance, but as its employment was a failure in the same regard of the disease it was necessary to find some other method of venereal therapy not to be considered.

Major Deane initiated a research with the object of producing and elaborating a new test, but a negative product of gonococcal metabolism. It is well known that gonococcal products are in some way responsible for either the actual catalyst or motion the urethra, complete. This has been proved in the case of many gonococci and seemed likely to be true also in that of the gonococcus in the mouth of experimenters turned out to Eubacterium New. After, when protected by untreated gonococcal media, proved lethal doses of gonococcal toxin.

After many experiments the details of which would be extensive, it was found that when gonococci were grown on media containing animal nutrient media they produced metabolites to stimulate bacteria biologically identical with the polar bodies seen in *R. typhimurium*. By suitably adjusting the media—and particularly, an increase—it was possible to produce 100 percent polar bodies (Baker body) formation in about one third of the amount of gonococcal material. These polar bodies were only very loosely attached to the bodies of the gonococci and could be separated from them. Unfortunately, in washing off the gonococci, plus these polar bodies, from the culture—the gonococci were catalyzed by the media commonly used for the purpose, and from the time almost cellulose was introduced. To avoid the catalysis of the gonococci 2 per cent saline solution must be employed for washing purposes; this solution prevents the gonococci from for a sufficient length of time to enable the polar bodies to be separated, the gonococci, being harvested, left in the bottom. The 2 per

and when solution, however, splits up the polar bodies into three two components: viz. alpha nuclei protein, and beta nuclei bodies. The alpha-nuclei-protein is precipitated by 2 per cent saline and the beta-nuclei-bodies pass into solution. Both these constituents are isotropic to beta nuclei-bodies more so than the alpha-nuclei-protein.

When polar-bodies producing gonorrheal solutions are thus washed off by 2 per cent saline and the wash allowed to stand for three or four days, it appears to have separated into three distinct layers. The half-colored mass of gonorrheal bodies seen at the bottom—then there is an intermediate white powdery layer of alpha nuclei-protein and above that a clear supernatant fluid layer containing the beta nuclei-bodies in solution. It is this solution of beta nuclei-bodies which we employ in our treatment under the name of "solution."

METHOD OF TREATMENT

We administer this solution variously by three routes, viz. Intravaginally, intrarectally and intracervically.

For the most efficient administration the product of 50,000 to 100,000 million gonococci is made up to 30 c.c. bulk with uncolored acid serum and 2 per cent. tartracetic acid added. The whole is installed into the urethra which has previously been irrigated. The addition of the colorless tartracetic acid is to alter the osmotic tension or to induce better absorption locally.

This condition is retained as long as possible. It is non-irritating and may be repeated as often as desired without risk of provocation. In practice we employ it whenever "catheter" "accidents" show gonococci in the prostate. This route is employed in an attempt to eliminate a local inflammatory process.

For practical administration the solution should be standardized so that 1 c.c. contains the product of 1,000 million gonococci.

Intendental operations are made into the skin of the shaft of the penis—not more frequently than once a week. They make not only an attempt to an attempt to eliminate the local principle endothelial system which is responsible for mucous body production. The dose which is not expressed as independent operations, is 500 million or 40 c.c. For intendental operations produce a local reaction with tenderness of the inguinal lymph glands.

The intracervical injection of serum is given weekly on the same time as the intendental—and in the ordinary way the material before a response or improvement does not work. This route is chosen as an attempt to meet the general community response of the body.

Treatment is begun on the earliest possible moment.

DIET

Is kept up freely and methodically as of —

(1) Thorough drainage of the urethra with the earliest possible irrigating fluids.

(2) The maintenance of what we consider to be the optimum hydrostatic concentration of the urine.

(3) An attempt to cause the local and general circulatory response of the body by the introduction of the isotonic and non-toxic elements of potassium-maintenance treatment.

(4) The employment of the toxic elements of the potassium (potassium) as a searching test of case in an extreme case for therapeutic purposes.

DISCUSSION AND HISTORY.

There is no old disease that only the best attack of potassium can cure. On the other hand there are cases not very infrequent that are apparently spontaneously cured. Between these extremes all varieties of severity are encountered.

One of the most difficult problems confronting any practitioner is the question of cure of potassium.

So far as we in the Service are concerned, the proficiency of our treatment is judged by the average number of days our cases are hospitalized in hospital.

Diuretics are excellent things in their way, but all who have had experience in treating potassium know how misleading hospital statistics can be with reference to the cure of this disease. It is all a question of "standard of cure."

At present we have to acknowledge that for the hard cases of potassium nephritis there exists no therapy whatever except respiration in the effect of the severe diuresis in the instance of cystitis.

On the other hand, it is widely recognized in this that there have not been great advances made in the treatment of this malady.

The results of potassium treatment compare very favorably with those obtained as judged by the standards of cure, say twenty years ago. The early in-day of such superior as structure, nerve, cellular, protein, almost all, which was common enough even in my childhood, is a very good that great advances have been made.

As regards our own experience and results of treatment by these methods, I would rather confine myself to potassium. Whether any new remedy is introduced for the treatment of potassium, the results are at first very flattering, but unfortunately when such new tests are applied they are found not to be so favorable as was anticipated. In the present state of our knowledge I do not think that we can expect to effect dramatic cures in this disease—in that, in judging the proficiency of any method of cure it is well not to lose a sense of proportion. All of us who have been associated in the experimental treatment of potassium feel that there has been a real advance.

There have been failures and disappointments, but our general impression is that there is a more rapid amelioration in the acute stage of

decrease in the number of complications and what seems to be the most encouraging feature: the fewer relapses.

The previous success, when given intravenously, has had a marked beneficial effect on such persistent complaints as chronic prostatitis and chronic orchitis. I would particularly emphasize the results obtained in the latter condition and can still to some extent particular cases in which most striking results have attended its administration.

I have referred to the striking quality of endotoxin when employed in a test of cure. Our standard of cure has been very high and many important critics of our methods have recognized how very excellent our results might have been as evidenced in "days in hospital" had the administration of the specific, procaccic endotoxin been withheld.

It is our impression that we have not exploited these methods of vaccine therapy to their limits of usefulness. The research was just beginning to become practically applicable when progress was stopped by Major Diamond's serious illness, in consequence of which he has had to leave the Service.

We have proved to our satisfaction that endotoxin, the toxic element, must be eliminated from treatment in the acute stage, otherwise evil is done as long as the disease.

Up to date we are only employing the late anaphylactic fraction of the polysaccharide and, of necessity, are, by discarding much valuable antigen or creating the other component—that is, the alpha anaphylactic fraction—from the vaccine. We do so in order to eliminate a potential source of antibodies, which may be of little consequence so long as our dosage is small but would be detrimental when larger doses of vaccine had to be employed. I merely refer to this to emphasize, nevertheless, the research into the non-toxic products of the glycoprotein. I have not the slightest doubt that it is capable of further development.

When everything is "optimum" in the manufacturing department, the clinical results are excellent. On the other hand past clinical progress can immediately be traced to faulty technique or manufacturing.

There is a poor and rather defective attempt to explain our methods at Woodville and I am conscious of my many shortcomings. The expression I should like to derive on your minds is to the real and potential value of this line of treatment is—

(1) That it is an advance although not a dramatic one and (2) that it is worth our while employing the best bacteriological and bacteriological tests available at the Service, so that the real may be repeated and these ideas explained to their limit. It is possible that such a line of research may lead nowhere but as a stimulus I believe vaccine therapy along these lines to be full of possibilities.

DISCUSSION

General Banister (President) said that as apparently the Polio factor had an important function in the cure, and to certain degree of similarity of cases led to an optimum production of these factors he would suggest an experiment

experiment that a certain number of eggs by treated with slight well delayed however as to its progress the current difficulty and almost solution of which he did not think any extensive discussion warranted on this point. Why is this that of other organisms outside of man?—tended to develop formation?

Professor Cammiller F. Deane said that the question was as to which the various had been applied and made, and the various shown in the above, but it made him feel that there was a real advance in treatment. The high standard of care was also a great point in its favor. Major Lundberg had said that one treatment of gonorrhea had improved because the disease entered within them it went in its. Others were not treated more after—was by gonorrhea, and described them, but the speaker could not agree that treatment had improved much. Even Colonel Williams in his third book, and recommended patients to postpone the application of the stand by for the present phenomenon during with gonorrhea. Yet that treatment was more than twenty years old. If gonorrhea was milder than formerly, the reason might be something other than treatment. Other venereal infections are getting less severe, even if not less common. Perhaps this phenomenon is due to the increased intelligence of the world's population, causing a general lessening of venereal tendencies. He suggested that the term "polio gonorrhea" should not be used to denote more, otherwise gonorrhea is known. By long established custom the term "polio gonorrhea" was applied to gonorrhea of the venereal disease of the males of various sexual cells. Using a term to denote two separate biological processes led to confusion. Before dealing up Major Deane's interesting work for the speaker) had just said that Professor Deane had demonstrated a "polio body" in the human sperm, and he had consequently thought that venereal had shown reduction of themselves in a dividing process, and these two sperm making themselves had been shown morphologically. The term "polio gonorrhea," and "polio gonorrhea," might perhaps, be applied to a gonorrhea, but were these "polio gonorrhea" and if so, were the gonorrhea treated in the "polio"? This point, however, was of evidence rather than of practical importance.

Professor Cammiller F. Deane said that in the laboratory was the reason in that most of the cases in his patients, and in the new treatment seemed to be considerably a simplified one, it would be necessary to show a definite and considerable reduction in the number of days under treatment before the method could be successfully used. This evidence could only be obtained by having two parallel series of cases similarly treated except for a single method of cure, except for the various treatment which only one series might receive. One object was to learn how fast in the case by the patient, and treatment on the general lines showed a more successful result by comparison method. In this speaker's opinion of gonorrhea together with most diseases from the first but it should be proved not by a search standard only. Gonorrhea results were obtained with but a few days of treatment. Various treatment on the gonorrhea was but with general evidence of gonorrhea was considerable. There was now hope for it if the highest standard was obtained and here on its early progress.

Major F. Cammiller Deane said that after mention the treatment of gonorrhea by gonorrhea made one feel that we were on the right track, but that the technique was too complicated for use in office. Perhaps it might come a time when that the evidence, the only element then really produced was much evidence and progress followed by the so-called "gonorrhea phase." But to obtain at least some fair results were often good. The discovery of the evidence was a great advance, and by the use of the evidence, and a clear method was rendered clearer very. This evidence, the result of gonorrhea treatment, was not an indication proved by the evidence, does that could be demonstrated without any harmful effect—and was highly satisfactory as proved by the two phases, treated by.

The first result obtained in many kinds of the right pH value and certainly normal water protein, which allowed for a high response of the gonorrhea. Probably

the "meninges" of Hunter and Perry was simply a pharyngeal process, detached and washed off the border of epiglottis with alcohol alone. These operations, not being given as a particular mode, represented a radically sound remedy of subacute gonorrhea.

This remedy in the treatment of the urethra, the doses of alcohols mentioned by Major Lambton might as easily strike every person, but those who had not with the alcohols infusion of chloroform will understand the reason. When the alcohols get the upper hand, they scatter around wags.

The alcohols never did not include the subacute gonorrhea as much as an acid would do, and sometimes was directed at a greater time, due to the power of the alcohols in the urethra and some to destroy the covering of the gonorrhea. Then the known violent nature of gonorrhea and Hunter had a greater chance of getting the disease. The remedy which violent enough often brought on a discharge in a patient who had been treated in secret was that the lungs had more than to remove the virus of carbon dioxide.

Major Lambton wrote me that for the past few months he had been treating many of gonorrhea at the Royal Infirmary Hospital with the treatment described by Major Lambton and that the following is considered this treatment as a decided success in two able methods. He had been previously stated were sometimes, as so many had been advocated in the past, which on trial had shown very little, if any, improvement in the results obtained so that he was naturally and reasonably prejudiced against them.

When beginning with this treatment, two classes have had improved results, the first showing up of acute clinical symptoms, and secondly the lesser able way in which patients in gonorrhea were able to the common treatment. He would have those who hesitated to try this treatment without treatment, that if the remedy was not prepared by an expert, however the results of treatment could be disappointing and so giving the treatment (independently).

Sir J. E. Lambton, in reply to the President, said that, unfortunately, gonorrhea disease, which he had been told to be common in medical practice. It was a case, the treatment of the disease was certainly of the worst, perhaps necessary was derived from that remedy, present in the lower. The practitioners, however, would be very much and unwilling to produce much appreciable progress, either. But of course practitioners were not able to produce such and always in the treatment. In the treatment of gonorrhea it could be said up infection and progressed in the body.

In reply to Sir J. E. Lambton, Dr. Lambton said that the initial symptoms of gonorrhea had become milder within recent years. The type of gonorrhea was no indication as to the course the disease will follow—the most common cases of gonorrhea having a mild onset. The early morbidity of gonorrhea of a complicated nature was probably due to better treatment. The term "point body" was employed in the report that these symptoms are all dead while that of the matter before it. Sir J. E. Lambton and Sir J. E. Lambton also stated.

In reply to Sir J. E. Lambton, Dr. Lambton said that the treatment is suggested that the main cause of the disease was early onset and in the early stage of the gonorrhea of gonorrhea, infection, inflammation. In the subacute and chronic stages, treatment should be given by giving out of hospital.

There was a case of gonorrhea of 1000 million protons. Infection had probably to enter except on large and large. Sir J. E. Lambton said that the treatment of gonorrhea was not a simple matter.

Dr. Lambton's remarks were good but questions in these effects. Those that were good were probably made about that 50 per cent. of cases that would be taken by patients.

THE NATURE OF THE DISEASE AND METHOD OF CONTROL OF
BACTERIAL DYSENTERY

By SAMUEL CARRINGTON F. LEWIS, M.D., D.P.H.

Before entering on the actual subject of the title above, it is advisable that one should have a clear idea of the meaning of the word "dysentery," derived as it is from the Greek, denoting meaning a bowel complaint, which term appears to have been applied by Hippocrates. The word at present covers many distinct conditions induced by varied species of animal and vegetable parasites. At the present position we are concerned with dysenteries caused by bacteria as distinct from those caused by animal parasites such as protozoa and nematohelminthic dysenteries, etc.

Section I

For the sake of clarity it is proposed to define the bacterial dysenteries as follows: "The bacterial dysenteries are acute or chronic conditions or epidemic specific infectious disorders caused by several varieties of bacteria which are characterized largely by means of fecal matter of dysenteric nature as well as that of persons suffering from these disorders. From the sources of infection the germs are conveyed to food or drink by the agency of flies, dirt, surface water, and, by direct contact with any contaminated substance. Infection usually takes place by the consumption of contaminated food or substance. In the body the acute symptoms cause a specific ulceration (or inflammation) of the large and occasionally the small intestine, which is characterized by diarrhea, usually accompanied by pain, tenesmus, and the passage of blood and mucus in the motions. More rarely the bacilli cause general septicemia." [1].

SYNOPSIS AND DISTRIBUTION

The following is one of the classifications of the bacterial dysenteries:—

- (1) Due to *B. dysenteriae* (Shiga-Know) bacillary dysentery acute or chronic.
- (2) Due to species resembling *B. dysenteriae* (*Shiga*, *Know*, *Hass* and *Kennell*, *Strong*), paratyphoid.
- (3) Due to germs having the general character of the *B. dysenteriae* but slowly fermenting (acid only), bacillus and not agglutinated by Shiga-Know and paratyphoid dysentery (quintatyphoid). [2].

Distribution.—The distribution must be considered, since it is a well-tried and necessary to tropical climates, and cold climates. In the former experience has shown that the disease is more prevalent at the end of the dry and the beginning of the wet season. On the other hand, in certain tropical regions—for reasons not yet understood—there is a seasonal variation. This may be due to drinking water being highly contaminated in

the water temperature, and (3) the unusual frequency and severity of the outbreaks of *Streptococcus flexu* (C. N. 1936) (page 2). It was suggested that that the thermophilic nature of these organisms is indicative of a temperature of 1-4 degrees centigrade (32-39 degrees Fahrenheit) as a lower survival temperature proved. This, too, is supported and strengthened as a fact since exposure to 122°F in the laboratory of *Streptococcus flexu* (bacteriological cases, and also it may be the potential reason why the disease is so prevalent in the tropics, even suggesting that the high atmospheric temperatures of such regions might arrest the growth of the organisms.

Since bacterial dysentery is a common disease of infants, it would be wise precaution to consider all cases of infantile dysentery as infectious and take precautions accordingly, until more diagnosis of such infection has been established.

The question of thoroughly investigating cases of infantile dysentery is borne out by many authorities. Dr Davidson found *B. dysenteriae* in no less than 59 per cent. of cases in children between the ages of 4 months to 11 years. [3] Graham, at Toronto Children's Hospital, found the Blue Kessel type of Flexner bacillus in 62 per cent. of cases of infantile dysentery. Williams and Williams in Aquinas found the Flexner 3 type and Shiga toxin bacillus in 40 cases of epidemic dysentery. [4] Deane at the Adelaide Children's Hospital had 76 per cent. in 157 cases giving the Flexner type. 43 per cent. of these cases originated from studies with numerous flies. [5] Hulse at the Dorset Hospital Children's clinic, showed that in that year 256 cases out of a total of 515 cases of dysentery were due to *B. dysenteriae* [6].

That dysentery should be looked upon with suspicion is supported by the statement in *The General Report of the South African Institute for Medical Research 1938*, where the following statement is made: "From information locally and distally obtained it would seem a serious form of dysentery occurs annually, round about October and November. Suspected milk and water were analysed without success. It was during these two months that practically all the above (Flexner 3) group strains were isolated from faeces received for examination."

Historical Note.—It is interesting to find the following historical note in *Shiga's Observations on Diseases of Infants*, dated 1893. The author states that in 1740 he was quite certain that dysentery flies and spores parasitized from the same source, and that it was then thought about by soldiers living in their tents in cold and wet areas. The author quoted the case of the French Surgeon, who noted of dysentery and dysentery in which a severe epidemic broke out when in the cold climate of North American winter but not reaching the warmest part of the epidemic season. The treatment is of interest and is worthy of note. It is as follows:—

Dr DEANE'S CASE OF DYSENTERY

From upper group, group 1, commonest commonest

1. Dysentery limited and acute. 1 hour dose, only collection seen and no more seen commonest commonest commonest commonest. 1 hour dose, only collection seen and no more seen commonest commonest commonest commonest.

- [illegible]

To this model, it might appear that diversity, as measured by species level method of survival, although shown to be better in short term trials, appears somewhat less useful because, as usually, a period of species level survival is at least 10 years. Unfortunately, we have only the theoretical pattern within the model to guide us and cannot rule out the use of species level survival.

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It is essential that systematic observations, the keeping of notes or other modern method of record-keeping, should, and the necessary attention to the carrying of all find that passes the scientific should receive every attention in the avoidance of systematic error. If the most precautions against this and various, the care of persons by given, especially in regard to the use indicated towards the soil, or to the use of the soil, the more exact of the spread of the disease, the more exact, the more exact, and the more exact.

Susceptibility to this disease should also be taken to heart. This virus grows rapidly and is double-stranded, on paper, in the bacterial flora of the oropharynx.

tract as well as to the condition of the individual person. Special care to maintain cleanliness, especially in persons suffering or handicapped by the disease caused by bacillus dysenteriae, is the indicated track. Whether a more extensive re-education by which of bacillary dysentery is questionable upon ground assumed by a person to have two or more attacks of dysentery in one season, holds holds upon this as an indication of a chronic type brought about by course of such, supports the demand experiments tend to show, however, that dysentery belongs to that group of diseases which render a certain amount of protection after one attack [7].

Successful Incidence.—This has been discussed by Leonard Rogers [8] in his work and, further, J. C. G. Liddington [9] has shown that after July and August when two dangerous outbreaks occurred, the epidemic appear to have been due to human sources.

Channels of Infection.—There are numerous channels by which infection may enter the body. These are usually grouped under three headings: (a) The Respiratory Tract; (b) The Digestive Tract; (c) Through the Skin.

Perhaps 90 per cent. of all infections are taken into the body by the mouth, which they reach as food, water, vapors, dust and upon the innumerable objects which are placed in the mouth. The fact that the great majority of infections are taken by way of the mouth gives scientific direction to personal hygiene. "Carefully habits demand that the hands should be washed after defecation and upon before eating, and no unnecessary objects should be 'mouthed'." All food and drink should be thoroughly clean. These simple precautions will, alone, prevent many a case of infection.

Bacillary dysentery [10] is a little disease the causes of which, like those of cholera, may be summarized as careless contact cases, carriage, dirty toilet, dirty water, dirty drinking water, the dust of dead deposits, and the copious excretion, dangerous droppings and the dirty feet of local feeding the feeding food.

Against this, food is not well, that is given has good food is sufficient variety adapted to the local production in the domestic existence under which he is carrying on living, well cooked and in the quantity he will find the best food (and the energy).

Prophylaxis should be directed towards:—

(1) The disinfection of 'carriers' by the systematic examination of the stools of all persons whose history would fit them for such a role.

(2) The sanitary disposal of all urine and feces and all excreta.

(3) The treatment of all 'carriers' to avoid or called control infection, controlled by stool examination.

(4) The prophylactic examination of the stools, and if possible, the oral also of all persons living in endemic regions in the effort to recognize the symptoms while the disease is still in the incubation prolonged period of incubation. Here it may be mentioned that the examination of stools

which indicates has been negative up to date reasonably good positive results.

(4) Outbreaks should be thoroughly investigated and the most vigorous measures taken to check further spread and to prevent recurrence.

In general the prevention of dysentery is closely parallel to that of typhoid.

THE CARRIER

The carrier problem in the case of dysentery is one of great importance. In bacterial dysentery the specific organism may remain in the body after the cessation of symptoms not uncommonly for three months. Careful and repeated microscopic examination of the feces after a negative has been demonstrated is essential. Besides the sleeping carrier, who probably excretes in many localities in the primary case, is a very serious danger to rapidly leading dysentery. The dissemination of the disease appears to depend chiefly on defective personal hygiene, hence to persons at risk and its liability to spread among children. Chinese army carriers are very rare, if ever found and the local carriers are few in number in the case of local carriers.

The question of the discharge of a patient lately suffering from the disease from hospital is a serious problem, but it should never take place until at least two bacterial examinations of his dejecta, at intervals of one week, with negative results, have been made. Further, these examinations should not commence until the patient has been placed on full diet and his stools are normally formed. Such a patient must not be employed in the handling of food or in water purification. An index or 50 per cent. of dysentery convalescents six months after the onset of the disease have been the potential carriers for the outbreak of local infection.

The 'carrier' has been largely written on and discussed [11] in the problem is of the utmost importance not only from the scientific aspect, but also in the realm of practical hygiene and medicine. The practical importance of the 'carrier' is such that a clear understanding of the term is essential. Although various has assigned the name carrier, yet a single have been chosen to obtain a more complete of the place of the - germ carrier in epidemiology that he originally later characterized by some other name, such as 'toxicant host' or 'verruca man'. The problem to the parasite of finding a new host is fundamentally the same whether that host is verruca man or a carrier. (2)

What are 'carriers' (12). Such has been described as an individual who harbored and transmitted a pathological organism without showing the usual signs of infection. Some have described them as being of two types, the first being the well known non-toxicant carrier and the second one who showed no signs of the disease harbored. Others have made a more elaborate classification of the carrier and have divided them into four groups:—

(4) *Personas in incubation carriers.* There is little evidence that such carriers, if they exist, cause much influence on the propagation of disease.

(5) *Contact carriers.*—persons who have been in contact with an infectious host and carry some organisms morphologically identical with those causative of disease, such cases organisms not being necessarily virulent or only slightly virulent, in some cases related to more pathogenicity.

The contact-carrier often responds to infection by producing recognizable mucousy excretion in the blood. He generally shows all the infectious or clinical signs, the outward and physical signs of infection (like symptoms) being absent or unimportant.

(6) *Carriers in contact with contacts in hospital during convalescence.* the organism which caused the illness.

(7) *Disease carriers.* who harbor infectious organisms for long periods after recovery from the disease, periods of infectivity being often only intermittent with alternating periods of non-infectivity. There are good grounds for concluding that the "disease carrier" is the more dangerous than the temporary or "acute carrier."

It is possible to prevent *Career* developing into *Carriers*—This is a delicate problem for we do not know why specific germs will develop in one person and persist in another. As previously stated such persons should not be discharged until every method of laboratory examination has been of a negative nature. Even then, it gives us only unsatisfactorily in the future they may be cured. It is not within the realm of practical economy to maintain people in hospital just because they are undischarged carriers. All that can be done is to make sure the infection concerned are kept in touch with each other. The carriers themselves should be very carefully watched in personal hygiene in all household cases and should be subject particularly to bacteriological examination. This is essential for dissemination of infection by such depends mainly on defective personal hygiene. Much has been written on the carrier problem and Doolley's paper on "The Carrier Problem," *Public Health* (London, 1912), is of great value in the student of this subject.

Healthy Carriers.—Vogues (14) found *Scarlet* carriers in 1,328 examinations who were supposedly healthy. R. C. Connor (15) and L. B. Egan (16) noted the spread of bacillary dysentery in Panama in which due to contact whilst Hudson (16) has reported a persistent *Thyphoid* carrier from 1903-1911.

In general, the disease in temperate climates should become of the more knowledge and literature exists, as D. King (17) holds that to be a true bacillary dysentery of *Shigella*, 1908. (Quoted by Rogers.)

The Mixed Case.—This is an organism not with in discussion of such a subject as bacillary dysentery, and it is well to make its meaning. In London it is usually understood to be a mild atypical case of disease which is not clinically recognized. Some such a patient may not make

be very well seen. Such wild cases go about their daily tasks, handle out food stuffs and act by a profile manner in spreading the infection of malar, remittent, or malarial disease. These cases thus form an important factor in preventive medicine.

Infant Dysentery.—This has been described by J. Cunningham in his investigations of gut dysentery in India. Hagar isolated the Flexner bacilli from the villagers in India—no double latent cases. Danon and Minde (18) at Chaplain, Arizona showed that of 595 cases in twelve years 18 per cent. relapsed once, 6 per cent. twice, and 3 per cent. three times, thus indicating that such cases were serious. Cunningham (quoted by Rogers) records that among 3,485 persons examined in four Indian gut-dysentery districts were found in 11.66 per cent., and by ten successive daily inspections the number rose to 59.8 per cent. Half of these by aggressive scope examination had elimination of the lower large bowel. Twenty-four per cent. of the latent cases developed acute dysentery within six months, while in 25.7 per cent. of sixty-eight individuals 25 dysenteries were found, thus being latent carriers, who should be isolated.

Section III

THE FLY IN FLIES AND VECTORS

Which the house fly is the most, as for ever being asked to keep out on flies, comparatively little is known about the common fly (*Musca domestica*), especially in the larval stage. It has been said that were our knowledge greater we might realize that flies are but poor scavengers in the strict sense of the word, because differ in their habits and breeding places, most, however, prefer manure. The time to commence fly-suppression is in the early spring, as temperature climatic for allowing approximately 3,000 flies to the ounce the total product of a single fly, assuming there are twelve generations in a summer, would provide (about) 832 pounds of flies, provided 15 per cent. only of them survived.

Flies carrying the water lice in cattle, for, and manure, these egg-laying activities as soon as the warmer weather commences, usually choosing to lay their eggs in manure or in organic refuse. The eggs hatch into larvae in six or eight hours, in four to five days the larva becomes a pupa, and five days (or not later) later the pupa, larva and the adult fly then has several weeks more life. Thus we have a period of ten days from eggs to adults. Hence the important sanitary point arises, namely, that all garbage and refuse should be removed as fast as often as that to prevent the development of the adult fly. Flies breed in manure especially horse manure, human excrement, all putrefying matter and garbage, poultry manure and all such places. In other words—accumulate filth, they accumulate, accumulate then disease is prevalent. Thus the common house fly can carry marauder infection is not becoming unusual history. For Gills, in 1899, showed that flies fed with pure cultures

within the northern limits in these regions. The larva has a tendency to avoid humidity, places them in hot dry spots in pupating, leaving the wings dry for their place. Such is of advantage, because the winged insect is ill fitted in any path. The migration should be done in cool and breezy, when the wind is kept away from.

It is also noted that *B. dysenteriae* have been recovered from the fly trap in their derivation from the pupae. He also quotes the work done in this subject by Lieutenant Colonel Wesson and Captain D. Conner, U. S. M. C. at the Green-Water Hospital Alexandria. He further notes that deposits of excreta dry up rapidly in the sun but such deposits have been no breeding places for the fly, whose numbers tend to increase in the sun which its summer power. It is nevertheless a fortunate thing that incense with the most and significance from the hygienic standpoint appear to be those susceptible to sunlight. As long ago as 1885 the United States Army Commission concluded that this was nature's method of infection. These excreta were collected from under the pits and then deposit of an acid prepared for soldiers in the most toxic in some instances where they had been recently sprinkled over the contents of the pits. It is with their feet smeared with these were seen walking over the food.

The flies transmit the virus of disease substantially either through their deposits, or upon their sensitive legs and other body surface. They may carry the infection directly to our lips or indirectly to our food or on any surface on which they settle. These numerous flights in about 775 yards (20) across open fields, deposited being favored by warmth and the weather. They can however make any amount of air travel possibly attracted by odors of any source. Flies travel less in towns than in the open country possibly on account of food and shelter attracted.

Fly Suppression.—This really means kill into a matter of hygiene cleanliness of surroundings. As previously mentioned, the chief breeding places being in mud and garbage dumps etc., these are the first lines to be attacked. Such procedure however requires an organized body in every town and which must have sufficient authority to enforce such regulations as they may make.

Waste matters should be removed at least weekly but if this is not possible it should be kept covered so that the darkness acts as a barrier to the entrance and the breeding of flies. The United States Department of Agriculture (26) recommends the use of sodium borate and crude sodium borate to kill flies and maggots. This has not the injurious effect on the contents as a fertilizer that had arsenate, because arsenate of lime, etc., poisons. Garbage should be kept in water tight containers having tightly fitting lids or covers and should be removed frequently. Other possible agents, such as kerosene, etc., have had no place definitely assigned to them, but along together with heat and carbonaceous should coming under inspection until our knowledge has advanced.

Fly-proofing—It is most essential that fly-proofing campaigns should be started *early* in spite of the fact, varying in degree from one of good natured ignorance to that of the grossest and maybe very stupid ignorance when evil is evoked. Places where food is stored, handled and all cook-houses should be fly-proof. Needless to say, these places should be so distant from barns as possible.

Of fly-traps there have been many, some promising little, others doing not a thing. Of these latter that designed by Lieutenant Colonel Greig, R. A. M. C., is one of the best.

Refrigerators and Warm

Meat and MILK, etc., should be under most careful supervision, and in the case of the former strict sanitary measures should be carried out. In the latter is included the water supply to the stations, which must be free from all impurities.

Refrigerators—Each given food as between calory, water, etc., makes for many conveyance. All these are looked upon with such suspicion that in the Royal Navy, the case of them on foreign stations is forbidden. The same rule applies to the use of fruit which must be cleaned prior to consumption.

Milk—It can be said that the cleanest milk is taken off by the maker, contains "dirt," part of which contains cow fever, spotted milk, etc. Milk, as is well known is liable to become contaminated by dust, by the past, dirty hands of the milker and other numerous means. After the actual milking process is finished there is risk of infection in the dairy, in transport and in the household of the consumer. Hence the importance of the slogan of "Clean Milk." In the former two cases of dirt as foreign sources may fall from the very important position of milk in the life of a domestic species on account of the content of dangerous and condensed milk employed at the present time. Still it is well to remember that prior to the discovery of the bacterial cause of milk fever, a person admitted to hospital in milk (say, with a fractured limb) developed milk fever by having milk from the hospital herd of goats! A herd of which the hospital authorities were extremely proud. Temporal medicine was of assistance in this.

Warm—Much has been written on the subject but how much more on water! But not Aristotle say "The greatest influence on health is exerted by those things we eat. Every require for our existence and this is specially true of water." But an essential article of diet, and which the greatest of scientists it is unfortunately, capable of being a medium for transmission of infection. It is essential for personal cleanliness and that of clothing and all articles. One has only to consider that a composite approximately 70 per cent of the body-weight is water its importance.

As Milk as a Medium of Infection—Bacterial infection and sporadic

and this constant pour of very strong water from waterfalls, especially at the Pacific Ocean, cannot but encourage good to an exaggerated position, and, in fact, also the less striking but more constant modes of infection in the sea. It is possible that the best is to do not simply to say events to take under natural conditions. Amongst themselves that this statement is correct it would show that but few waterborne micro-organisms, if viruses, may cause disease. Further supplies of water much more as that springs and wells have been the most interesting sources.

Dysentery infection may be said to be transmitted via drinking water and it thus plays the same rôle as dysentery as is applied. It should be remembered, however, that comparatively few waterborne epidemics of bacillary dysentery have been recorded in civil life. Nevertheless, these few occurrences testify as an infectious vehicle. Thus, some years ago, reported outbreaks in Japan from the use of well and river water for Japan is the land of small streams and wells. Those who have arrived in China will recollect the Chinese method of conservation of human faeces for manuring purposes, and the small pits and wells should be looked upon as potential sources of danger. Whitaker [22] reported a water-borne epidemic in 'hook hi' Poots caused by using infected water from a fire connection whilst that described by Dupuy [23] occurring at Genoa in 1921 is a wonderful example of a water-borne epidemic of dysentery. Shiga gives the following instance in China: 'Mikoto Medicine' and quoted by Rossini in his *Japanese Medicines and Hygiene*, 1915:—

In a village called Minami Mura, at Yokohama, in Japan in 1905, a dysentery epidemic broke out in houses situated near each other. It was proved that the well used by all the households, drawing from the surface, was infected with the dysentery bacilli. We know by an interesting example of pure water infection in Japan. There is a village called Minami Mura, on the island of Miyagi Koo, through which a river flows. Fishing and swimming were prohibited as a measure of self-defence. In the late summer of 1906 the population was increased, the use of the village was very glad to be allowed to swim and fish near the river. However, after four or five days an epidemic of dysentery broke out, with two patients the first day and increasing numbers daily afterwards. There were in all 122 cases, of which 112 were boys under 15 years of age. After a fortnight it was found that there was an epidemic of dysentery in a village higher up the river and the water had been cooled with infected children.

Swimming pools must not be overlooked as sources of infection. These should be under strict sanitary conditions.

Ice of water artificially, should be under strict sanitary supervision. Ice-cream should always be prepared aseptically when artificial ice is employed.

Food should always be looked on with suspicion, although it is, in the weakness of human nature, is frequently looked upon as the source of infection.

WELLS.—Dysentery may arise from well water which has become polluted by (a) the land soil being contaminated with organic matter

(4) enough chlorine dioxide to oxidize organic growth on the lining of the wells; (5) enough boron to replace any and all boron in the sand or water (especially in limestone) which proved of pollution.

The latest wells are the deep ones. Arsenic wells are also generally safe.

Spring—The same methods of pollution of wells apply equally to springs, together with the danger of new workings allowed material into the springs. Catchment areas should be as far away from known holes as possible. They require great sanitary supervision in the prevention of pollution, especially human waste products.

Refrigeration or Water—A real vacuum of literature exists in this subject, but space will not permit of more than a brief reference to the subject. With regard to bottled water, the method under water safe provided storage is also safe. Unfortunately, it always possesses a "tin" taste, and neither is it possible to hot water for a real measure of human health. Heated to 50°C for twenty minutes or 60°C for a few minutes would ensure safety against *B. dysenteriae*. The purification of water through the English filter bed, i.e. slow sand filtration, certainly diminishes bacterial numbers [24] the distance should be placed on chemical, bacteriological, or bacteriological plates. They give a false sense of security.

Storage in Reservoirs—In such purification is by Farnes's method, i.e., sunlight, chlorine, sedimentation, coagulation, and agitation. They should however, be protected from contamination, and cover should always be provided where possible. Sedimentation is of but very limited value. Its most important factor is in the bacterial purification of flowing streams. The chlorination method is the method par excellence and is now of such wide-world acceptance. It has proved its worth in past life and in the future. Its method of use is one which, besides being of world wide utility is familiar to every serious medical man and others who have duties in connection with water supply. The value of this method cannot be overestimated, since it appears to be such a universal purifier of water, and its worth has been reported on quite fully in connection with another subject by Blackmore [24].

Other methods such as the ozonizing method, treatment by ultra-violet rays, or has been tried in Minnesota do not call for comment other than being of academic interest, since our short studies of security require us to side with the chlorination method.

Drinking water for the military service, and other when bottled (for water in very ships is treated by the chlorination method by regulation) requires the usual supervision. Supplies for a mobile force or one in a temporary encampment are especially a difficult problem at times. Ten gallons per capita presents a serious problem regarding its disposal if no sewers are available. We are fortunate in having readily available advice at hand in our Service handbooks and other publications when dealing with this question. Drinking water should always be drawn further up

the stream. The most common should have covered for watering animals and the house suitable for laundry and bathing (if permitted). Often, of course, military exigencies compel similar preference to give way in the choice of such facilities as above mentioned.

REMARKS. Dysentery in Professor D. C. Whipple (Professor of Sanitary Engineering, Harvard University) had very minutely summed up their subject as follows:—

The basic principle which underlies all methods of sanitary disposal is to get rid of sewage as rapidly as possible with the least exposure to the smallest number of people with the least damage to health or property, and with the least cost. Experience has shown that failure to remove faecal concentrations safely leads inevitably (temporarily and properly) to a menace to public health.

Proven and adequate should not be followed in a densely built-up area. There must then ordinary care is maintained their condition may give opportunity for the spread of disease by insects and animals and by the pollution of soil wells. By taking special precautions against the spread of infection through the sewage of this water by preventing their handling or preventing their being discharged into the local water and by closing polluted wells or covered districts, the danger from persons and animals may be greatly reduced. Sometimes it is wise to do this in villages and in small towns then to go to the expense of introducing a sewerage system with perhaps the most difficult and expensive of putting the sewage into collection. Sewerage is objectionable to the masses because of its disgusting odour and it is dangerous to health because of the possible presence of pathogenic organisms. Most with the poisoning, organic matter and increasing loads of bacteria, largely engaged in their work of destroying organic matter, their may be bacteria, which have come from pollution with dysentery, typhoid and other diseases.

Cleaning of latrines is very necessary at intervals. The disposal of the contents in a well-known case. Commonly it is used as a top dressing for the land. The work is not to be done in winter when frost interferes with passing and often when the ground is hard (the writer has frequently seen this done in various parts of N.E. Yorkshire) there opportunity is given for local bacteria of human origin to be washed into a water supply. If sprayed during summer there have been and opportunity is afforded for infection to be spread by flies etc., odour etc. The only proper method for accepted change is by burial in a ditch or run.

For the prevention of dysentery it is important that large and small should be disposed of in a satisfactory manner. Of all camp wastes the body discharges have the greatest importance. Burial or burning should be carried out daily. As Ballou has noted different kinds call for different methods—what will do in Yakima will not work in Mesopotamia. The latter must be buried in sand-laden conditions.

It must be borne in mind that it is impossible to obtain satisfactory results in health records of troops if the public health of the local population suffers or has incurred important attention. This is a very important factor and in previous days did not, perhaps, receive the attention it should have done. The strength and health of a fighting force depend on its physical diseases and effectiveness rather than on its size. Much was shown by the famous "Old Comradeship." The signs of sanitary

administration in which have been aptly and wisely summarized in the *American Medical Manual of the Medical Department* —

(1) Preservation of the strength of the Army in the field (a) By the necessary sanitary measures, (b) Distention of officers at the front and the movement of new officers to the rear without observation or military operations, (c) By prompt removal of the wounded and their removal to the rear.

(2) The care and treatment of the sick.

How important is *sanitary* (a) the first order! Our experience in the late war and the application of the knowledge contained in the official handbook on sanitation (a) teaches us public health, keeping them out of the hands by making such works as 'Engineering' for the latest references on sanitary treatment, must study it as for the difficult work of preventing the spread of a disease of the nature of bacillary dysentery. More than that, we are armed with knowledge to prevent its onset, or any rule to any sanitary danger.

Sanitation — In hygienic days and was known as being a necessary factor in the spread of all local communicable diseases. Our present knowledge leads to the fact that few organisms which introduced into a wound, are pathogenic to man. Of course and pointed with convenient presents a possible danger of microbial infections. Further it may be a warning and making place for the which may carry infection.

Chloroform should be regarded as well as ether, for it causes organic matter in which pathogenic organisms had a suitable culture. Of personal observation in the respect probably the two most important notes are (1) washing of hands before eating, before handling food and after all acts of nature and (2) keeping the fingers away from the mouth and nose.

A History of the Sanitary Aspect of Hygiene — Camp sanitation dates from early Biblical days. For it is not written in the Book of Deuteronomy, 'Thou shalt have a place also without the camp, whether thou shalt go forth abroad' and thou shalt have a public upon thy spear and it shall be that when thou wilt use thyself thou shalt dig therewith, and shalt turn back and cover that which cometh from thee.' Adams (Charles Francis) in his autobiography, relating his experiences of the conditions existing during the Civil War in America writes: 'The trouble however was we were all so unacquainted and knew nothing of the laws of health and self-protection, and we thought there here were no worth knowing. Why any of us survived, I cannot say. On the other hand we had no school of instruction.' Our brother officers who have gone before us in hygienic days have no doubt left the same sentiment.

On the health of the command military efficiency depends, and soldiers in the past have responsible for many a military disaster. Dysentery, among other diseases has sapped the strength of armies and been a liability to loss of men and positions. Only of recent years have the sanitary and medical sciences superseded the forces in such a wonderful

erect that the human domination of germ which is the thing of the past. It is a matter of history, how great is the disadvantage, up to comparatively recent times when military methods of administration that the treatment of wounds and diseases was the right advantage in its dominance and not in, today the prevention of disease. Military bacteriological medicine on any appreciable scale really commenced with the Franco-Prussian War of 1870-71. Do we always remember that the men and the war are mutually interdependent and interrelated to questions of health? We do, but not to the extent desirable however much we may lead ourselves for the improvement which holds in the present day, thanks to our intention in matters of hygiene. We must preserve the strength in the field. We must supply all human resources of military science always bearing in mind that the demands of the soldier are reflected in the soldier, the soldier and the nation. Military efficiency depends largely on discipline and we based on the late war that which maintains order, its special attention and supervision.

Bacterium as THE BOMB as a Weapon.

Flück has recently written on this subject. There is then opened to us a new and terrifying weapon of war and one which may be of great interest and a subject of deep thought to medical officers. It is quite possible that the conditions have been very thoroughly considered by such committees as this country as the Chemical Warfare Committee and such-like. The Chemical Warfare Committee in whose findings naturally the ordinary medical officer does not possess.

Flück [26] describes the bacterial weapon as an attack on war by means of pathogenic germs which when introduced into the human body may give rise to an epidemic disease which subsequently of itself spreads to other living beings, human and animal. If such a weapon were introduced into future warfare we are then faced with a new "weapon of spread." The pathological factor of large scale war conditions would be great and may thus have a serious effect on the political and military conduct of a war. An attack by glass bombs containing pathogenic organisms could be by aerophages.

A country using such an arm would of necessity be compelled to maintain their own body against the pathological infection. Espe de Darnet [27] proposes a plan of prevention and defence against such a weapon. Briefly that is as follows:—

- (1) Methodical study of the questions in the hands of specialists dealing their whole time to the question.
- (2) A careful surveillance of research experiments and trials made in foreign countries.
- (3) A series of experiments with the bacterial weapon, and when war breaks out the establishment of every department headquarters of a field laboratory under a bacteriologist.

Blatt [28] on the same subject suggested the idea of equipping the

proceedings in the military and political worlds important and suggestive on this subject but his opinion were all of doubtful value.

Our Prime Minister (Mr) declared that so long as the Powers had not agreed to ensure and guarantee the prohibition of the use of poison and of poisonous gases, the British Government was bound to take a very precaution against attacks of this nature, by organizing a research into offensive and defensive methods of this nature, including those of the most violent and rapidly spreading kind, and of means for protective purposes.

No longer are these statements in vain, for women, children and the old folk will be called up for some sort of work, since it is not modern warfare a matter of mutual consumption of munitions, of mutual destruction of the misperceptions of morning and justice rather than a conflict of dynasties, armies or governments.² Thus the simple women chosen in all the new forms of war. Against this the Red Cross, in January 1918, at Bernese, considered such agents as especially required. War being war one may never imagine what the future has in store for us, and it may be that here we have a further ³ source of the speed against which we shall have to arm ourselves of our science and knowledge in the world fight. Thus also of historical warfare may, after serious consideration, have been warned more by our authorities, but of this I have no information and, being of a confidential nature, the subject, naturally, was not pursued. Interviewed persons near the matter referred upon to the *Revue Médicale Belge*, No 7, July, 1919.

Section II

The richest of this subject would be well served to by the conclusions of her study on the groundwork available for her in the shape of *The Official History of the War*, especially Vol. III (H.M. Stationery Office, 1922) and the various Special Report Series of the Medical Research Committee, especially the following:—

² Reports upon investigations in the United Kingdom of Dysentery Cases referred from the Eastern Mediterranean.

No. 3, II.—Report on 375 cases of Bacillary Dysentery.

No. 5, III.—Report upon numerous cases of Enteric Dysentery in the Royal Naval Hospital, Malta, 1915-16.

No. 6, IV.—Report upon the Combined Clinical and Bacteriological Studies of Dysentery cases from the East possessions.

No. 7, V.—Report on 1,000 cases Bacillary Dysentery reported at General from various Anglo-Indian Forces.

No. 22.—A contribution to the Study of Dysentery in Dysentery Cases.

No. 23.—An investigation of the Flexner I Group of Dysentery, South.

No. 24.—Studies of Bacillary Dysentery occurring in the French Forces in Macedonia.

No. 25.—A study of the Serological Basis of the Flexner Group of Dysentery South.

Of more interest than is the work of (4) Hightwood on the development of dysentery in *Thomomys talpae* (34). This investigation will also be found to be of great assistance in all the studies now at any time called for under work to be performed. It is much to be regretted that various suggestions suggested the authors of this paper from considering their biological investigations but, nevertheless, their results, so far as they went, were of great interest.

It is necessary, in order to prevent the spread of this disease that an early diagnosis should be made. For this purpose, methods should be devised as rapid as possible, whose subject has been fully discussed by various authors and writers (31). Hightwood (36) holds that bacillary dysentery is the predominant form of dysentery. In applying the method of spin diagnosis to the diagnosis of dysentery and other intestinal diseases it is essential to have a clear mental picture of the relative characteristics of acute bacillary dysentery. Always be suspicious of a large number of pus cells. Do not, however, diagnose bacillary dysentery unless a mass of great epithelial cells, showing marked degeneration under some reflexion and other evidence of decomposition are met with. Pus of itself does not necessarily imply bacillary dysentery, especially if macrophages and giant cells are absent. If bacillary dysentery is the disease, these will, however, be present. Hightwood recommends the following points as worthy of consideration in making a diagnosis of bacillary dysentery from the study of a fecal film:—

(a) Proceed first to exclude bacillary dysentery. This is not a difficult thing to do, particularly two to three hours after the onset, for by that time the fecal masses will have taken on the character of bacillary dysentery at present.

(b) Cases of bacterial dysentery should be studied with especial care. The purulent exudate which accompanies well developed bacterial dysentery, bears a close resemblance, at first glance, to bacillary dysentery.

Williams and Sherman (31) laid down that bacillary dysentery whether complicated by amebic infection or not, also gives rise to a cellular exudate of specific character in stools. These authors summarized the characteristics of this exudate in the two types of dysentery, stating that the exudate was chiefly polymorphous cells, which laid perpendicular over numerous flat surfaces of broken shagreen (pegs) of cells occurring only in all parts of the stool including the surface. The degeneration may go so far as to leave only the periphery of the epithelial sheath cell, which is one quantity is very typical of bacillary disease. Asherson (34) has shown that the dysentery stool contains a wide variety of cells from the gut wall and from the blood. Giant cells plus epithelial macrophages would make one convinced that the case from which they were obtained was one of bacillary dysentery. It does not seem to be clear at present whether the cells or abundance of macrophages bears any relation to the clinical severity of the case. Eosinophages is an extremely rare element of the diagnosis to

to reach a firm state a short time after the onset and then allows of early specific treatment at a time when this will have the most beneficial effect. Further elaborate bacteriological apparatus is not needed. A still more important point is the fact that a satisfactory prognosis as to the mortality rate would result. No small points of course in too small a laboratory to make such an examination. Another point arises (Barnham, and that as we should discuss them in our method change to such early advice. We must remember that we must "strike early and strike hard" when the disease is incipient as it was suspected for the experience that dysentery is a destructive agent compared to which strong drink is a mere phantom, is sufficiently new inspiring us to make or take it thoroughly to heart (quoted in *Magregor on Cholera*—*Principles and Practice of Medicine*—*Tenth Edition*). Undoubtedly more removed by means of the sigmoidoscope or colonoscope is the most satisfactory method for the purpose in hand.

SPERMAL HYDROGEN—Such a case as the late one afforded wonderful experience and the Committee under the late Sir William Leishman (the War Office Dysentery Committee) brought out a report which eventually became the basis of the management and control of such cases. This report has been of great value. Dysentery cases were sent to special hospitals, thus obtaining the best possible treatment and bacteriological examination. After that they were sent to the dysentery convalescent hospital at Haslem (but after the war this establishment being closed, they went to Addington Park Hospital by convention. Thus an additional examination was made three weeks after the termination of treatment in previous practice examination (Vol. I, "Office of the War" p. 114). The patient could then be discharged as from other convalescent hospitals if otherwise fit. Such control is essential and the moving of dysentery cases must be moved out with the same care as that of typhoid to prevent any spread. It is, therefore, most desirable that these cases should be in special hospitals. *Ballantyne* [25] has written an interesting paper dealing with patients suffering from the disease who were removed to hospital in the early stage of the disease, although in a paper read, by the greater part with attempts made more on the hygienic side than that of treatment. According to this paper it was children who were the chief sufferers. With certain cases one is at a very delicate position, and in dealing with such oral population as last and appearance of their mortality which will be the greatest of cases in dealing with the treatment on the last above indicated.

PAIN EXTRACT 26—The high degree of toxicity of the Mops bacillus has militated against the successful use of vaccines for immunizing or treatment purposes, but there are hopes of much less poisonous antibodies with good immunizing powers being available [26]. Prophylactic vaccines have been used by injection and by mouth. Some protected rabbits by these methods but less so by the oral route. Conclusions confirmed this but

Bullock's results, (14), (15), and (16), particularly support its value. Others, and Kowless, in connection with Kowless' observations of the relationship existing between the virulence of the culture and the virulence of the host, have given an interesting explanation. Thus they hold it to be contrary to Kowless's principal argument in favor of local immunity of the intestinal wall. Yet on the other hand supports Kowless. Peers and Coppinger (27) attempted to find a satisfactory reason with more propriety by showing the local immunity. Control has worked on intestinal virus vaccine.

The work of Kowless caused such a sensation and discussion that it cannot be lightly passed over. Kowless (28) in a well known holds that the subcutaneous vaccine are effective, not because they give rise to antibodies, but that they are absorbed by receptors cells and give rise to local immunization. He holds that such immunization gives rise to immunity in other days, and antibodies may be found in the blood after the first and second and represent a response to the pathological manifestation of antigen through exposure produced by the action of the vaccine per se. These viruses took up quickly, and the infection is then no longer subject to invasion. He concludes that laboratory experiments and trials in man show that oral vaccination is effective both for prophylaxis and treatment in dysentery.

In the recent trouble in China it is understood that the Royal Marine Force employed an oral dysentery vaccine made by Dr. Rodriguez, Paris, and the results were said to be satisfactory.

Such startling work, as that of Kowless has been uniformly entered by Ledingham and others (but references will be made in the later. Reed and Conant, with their limited experience in China told them to believe that they obtained a certain amount of protection. Nelson and Muggish (29) vaccinated 897 patients and staff without troublesome complications, and none developed the disease except for relapses in two with history of previous dysentery. Vincent (30) reports the vaccination of 3,175 with pyogenic vaccine and found antibodies in the blood in five to six days. L. Williams and Wells in an epidemic among children gave 250,000, and 150 millions of *Flavus* organisms killed by heat at intervals of three days. Two only of the 30 vaccinated had any general reaction. These data indicate the protective power of the vaccine.

The recent in Kowless's work, shows (31) carried out experiments in view of Kowless's finding that a local immunity may result from oral administration of the vaccine. He, Kowless, carried out his experiments with the object of determining the degree of resistance to *Sh. dysenteriae* (Shiga) comparing it with the immunity resulting from the usual subcutaneous vaccination, and to prove the evidence of such local immunity of the intestinal canal of subjects vaccinated by the oral method. His conclusions are as follows:—

(a) It has been possible to produce a certain small degree of immunity by the oral administration of *B. dysenteriae* vaccines.

(b) The immunity so obtained is based up to his evidence is that produced by the administration of a killed vaccine.

(c) Though there is some indication that oral administration produced a local immunity in the intestine with the point vaccine indicated.

(d) Attempts to secure by administration of oral administration of killed vaccine, a solid immunity against the multiple forms of *B. dysenteriae* (Shiga toxin, usually administered, have not been obtained with the shiga toxin. Included in the work when some immunity was sought in the live bacilli method administered.

(e) The oral administration of the shiga toxin gives rise to less general immunity than does its administration subcutaneously.

(f) The antibody given at the serum of rabbits administered per se is approximately equal by repeated injections.

Fukun and Berry [40], writing on the importance of prophylactic protection of infants made observations on 476 whose children under 3 years of age artificially fed. They were given 400 million cubic of live vaccine of *Flavus B. dysenteriae* (200 million bacilli given twice every month in the first half on three successive days in 30 of the infants. The frequency of dysentery was observed with the control lot. He therefore came to the conclusion that the orally administered vaccine did not protect. Williams [41] also reports an unsuccessful attempt to protect infants by oral administration of vaccine. Gilks [42] considers Beronius's work as incomplete and gives very strong criticism on it. This work is a very important contribution to the subject. Weiss [43] states that in infants vaccine taken per month is most effective. Murray and Var [44], in their work, point to the probable value of this method, as given, but careful selection of the strain for this purpose is essential. Var [45] shows his method of making such vaccine for administration per se. Condon and Browne [46] found that the contents of spleen liver and intestines of rabbits which had been vaccinated orally have a high titre when their serum has little or no agglutinating power. The antigen, if present in the vaccine, would appear to exert a strong action on the antibody in the blood, deduced by the destruction on one rabbit of the agglutinating power of the serum after feeding from 1 to 100 to 1 to 20. Powell [47] concludes that from the comparatively small difference of protection the mechanism of oral immunization in infants is not to be ascribed to antibodies in the blood. It will thus be seen that opinion is divided on Beronius's work and his work seems on the destruction and disappearance of antibodies from the blood with repetition of the oral immunization does continue to be the subject of much recent discussion.

The student of the literature on prophylaxis has to enter much ground. Oiler [48] considered both oral and subcutaneous. The same precautions should be followed as in typhoid fever. Flannery and Gay have shown that vaccine can be protected from infection by a previous treatment with vaccine virus. Prophylaxis and curative are here being prepared.

Vietnam, in about thirty-five days (35 to 45) by a route for three days at least one hour before food. Shiga produced a crisis by commencing hours by which the virulence of coliform dysentery has been remarkably reduced. Good results have been recorded from the use of polyploid strains which should be given in doses of 50-100 c.c. Anti-dysentery vaccine is one of the many vaccines which come under the Therapeutic Substances Act, and it has been stated to be practically nontoxic.¹ Dunn and Johnson [44] showed that toxicity of an emulsion of *S. dysenteriae* could be reduced or entirely destroyed by dilute hypophosphite and (1) in 1,000 dilution of toxin at pH 3, and then the injection of an emulsion of this fluid in which the toxin had been destroyed produced a satisfactory degree of immunity. One must remember that the fluid is subcutaneous and systemic. The latter is a neomycin and the former acts as a poison on the intestine. By the suppression through neomycin of the toxin-producing activity of *S. dysenteriae* (Shiga), a pure emulsion is produced directly from the culture (McFarland and Halsey [40]).

With regard to prophylactic vaccination, Hansen [41] states that it had formerly fallen into disuse among its adherents because. He further states that vaccines are not yet available in these climates at any real protective value, at any rate the immunity induced is not a very long one certainly not over three months.

Carroll [42] that the preparation of an efficient vaccine giving a not too severe reaction is difficult. He mentions the following: (a) broth culture vaccine; (b) peptone water vaccine; (c) carbonized bacillus vaccine; (d) powdered carbonized dysentery and typhoid and par. A, and par. B vaccine; (e) smeared vaccine; (f) serum vaccine; (g) Götting's charcoal vaccine; (h) dy-lactin; (i) hypoglossin, a variable mixture of vaccines.²

Blanc and Combes [43] hold, that from the earliest results they had with cholera, shiga and the aged, there is neither danger nor inconvenience from the use of living dysentery vaccine. Hansen [44] holds that employed prophylactically the protection conferred, if any, is of a very temporary character but probably useful in terms of epidemic. He further states that in spite of the evil reputation of *S. shiga* vaccines the toxicity in some of the specimens combined with any more effective, even in *Escherichia* or *intestina* follow the prophylactic use of typhoid vaccine. He further states that, as a practical conclusion, the vaccine should not be given to guard against the most drastic of dysentery, infection unless one has the opportunity to revaccinate at frequent intervals. The inoculation of all contacts and persons liable to infection is likely to prove a valuable prophylactic measure.

The Bacillus vaccine.—This subject is still in such recent stages of research that the pros and its opponents are not a few; that little can be said on it so far as dysentery has regard. The important point among in this particular is that Peters, in 1934, reporting on twenty-three cases of dysentery, reports "these were treated with antiparasitic vaccines by

54 *Speed and Method of Control of Boundary Dysentery*

Dysentery in Japan. Kawan isolated the bacillus bearing his name in 1908. While there are no two points which produce a characteristic dysentery, he does maintain that the Sakai-bishi group also cause a similar dysentery. This rather does prove the words of Thwait and O'Sullivan: "the incommensurable group of bacteria which is commonly so applicable to the dysentery group of bacilli, and vice versa but as the latter are extremely variable in their action." His names appear, excepting observations by many writers on the various dysenteries during the Korean War. He emphasizes the practical importance of bacteriology, in which bacteriological reference has been made. In short, his contribution is a valuable contribution.

Conclusions

I.—There is poor water supply in the widest possible areas of the town.

II.—Food crops from, whole and scattered local vegetables. Wash all food which is usually consumed raw.

III.—Early recognition of all cases and carriers.

IV.—Early segregation and isolation of all cases.

V.—Always search for 'carriers' especially in endemic cases.

VI.—Deal with exposure on cases of dysentery.

VII.—Destroy by incineration, or, if that is not possible, bury out the most rapid destruction of all dysenteric excreta. Even after disinfection take care that flies have no access thereto.

VIII.—Wipe persistent surfaces on all flies and their breeding places away with against boundary dysentery in the house, use against flies.

IX.—Avoid drug habits.

X.—Hygienic disposal of sewerage, garbage and all refuse.

XI.—Ensure a clean food supply.

XII.—Remain connected with the local sewerage scheme. There is no in different parts of the world, e.g. the English method against the present method of Korea.

XIII.—Wipe was on flies. Laying it by not potato poisoning if necessary.

XIV.—Be chary of employing any hospital sanitary code, &c., who has already been the subject of the disease.

XV.—Korean flies give a sense of like severity to the civil population. They are not so different widespread.

XVI.—Outbreaks should be thoroughly investigated. Most rigorous measures are called for to prevent further spread.

XVII.—The prevention is closely parallel to that of typhoid.

XVIII.—Prophyllaxis: maintain as far as possible better conditions in exposure are divided. Other forms of administration do not afford lengthy periods of immunity. The popular view may be great in the outbreak stage.

XIX.—Always remember that sanitary efficiency depends on the health of the community and the state of medical administration is the pre-requisite of the strength in the field.

Therapeutic and Medication Control of Depression: Inevitable

- [illegible]

enabled to give a full description of the injury, and sufficient cause in which it occurred, and the actual or possible results of such injury in the case record.

(d) A complete list of all injuries which have come to the knowledge of the medical officer, specifying whether the injury was sustained on duty or not, or at the greatest convenience to the Medical Department. It may subsequently happen that a man may lose his claim to compensation on an injury received some years before of which no record can be found. An additional list of all injuries, however distant, beyond those actually on the sick list is therefore of the greatest value to the officers engaged in questions of compensation.

(f) In a further sheet, the words "On Duty" or "Not on Duty" opposite each injury in the alphabetical index may be used.

(g) If a man has been injured and, after enquiry, a brief certificate is not granted, all considerations and particulars should be given in the description of the case. A man is not necessarily absolutely debilitated from a brief certificate even if there has been contradictory evidence, and such cases may need careful judgment when questions of disability arise.

The above points in connection with injuries may help to explain the importance which is attached in the journal by these officers whose work is connected with cases of compensation.

But attendances and compensation do not cease with injuries. Diseases frequently present themselves in connection with disease, possibly with tuberculosis, and the following information in the journal would be of material value:—

(a) A statement in all cases of tuberculosis as to whether the patient had been subject to any undue hardship or exposure or exposure as caused by manual or naval service.

(b) A nominal list of all persons, if such there be, who have frequently been placed upon either the sick list or the attending list for various respiratory ailments. It may happen that a history of attendance over long periods for tubercular conditions may be given by a doctor, and the existence of such a history may have a direct bearing on the assessment of *invalidity* or *aggravation*.

In the case of tropical disease detailed information should be given as to the circumstances in which the illness was acquired, and as to the prevalence of the disease in the district in question. Any other points where the question of *invalidity* may arise should be fully discussed. It sometimes happens, for instance, that medical officers draw attention in their journals to proposed alterations and additions in connection with hygiene, diet, or the ship, or make suggestions which obviously concern a department other than their own. Any such matters will naturally have been brought to the notice of the Commanding Officer of the ship, but a note to this effect should be made in the journal in order that the Medical Department may realize what action has been taken locally.

So much, then, for information bearing upon matters of classification, the importance of which from a departmental point of view can hardly be overestimated.

The second object of the journal, namely, as a source of statistical data, involves me more directly. I hope, therefore, that I may be forgiven if I draw attention to some points which seem to present a little difficulty.

TABLE V—Perhaps a brief explanation of the purpose of this table may not be out of place. In the Medical Department a chart, which is merely a much enlarged Table V is kept for each station or fleet. The figures from the Table V of every journal are entered on the appropriate chart, and the information thus acquired is subsequently embodied in the station remarks of the Report of the Health of the Navy. It will be evident, therefore, that Table V is an important item upon a statistical point of view, and I hope I may be excused if I point out some misapprehensions which seem to arise in the compilation of this table.

(a) The table should only be used to tabulate the diseases covered by the general headings contained in the table itself. It is unnecessary to include diseases from Tables III or IV which are not respiratory, such as measles, leprosy, &c. In the later pages of the journal the instructions at the head of Table V are so worded as to make this clear.

(b) Cases remaining by land routes should not be included in Table V. They have already been tabulated from previous journals.

(c) Cases entered from other ships should not be shown in Table V. These cases are dealt with in the journals of the "departing ships."

TABLES III AND IV—"If a single journal is required for a vessel including portions of more than one calendar year separate Tables III and IV are to be used for the separate years. This modification has been included as a heading to Table III in recent issues of the journal. If all cases are included in one table the necessary corrections in dates are cumbersome of a rather lengthy nature.

VACCINATION OR INOCULATION—It is of the greatest help if doubtful exposures can be verified from hospital records before the journal is despatched. It is evident that this may not always be practicable, but, when possible, it necessarily has great value in reaching hospital records.

ALPHABETICAL NAME LIST—Indices of the same persons should always be placed consecutively. Systematization of alphabetical roll lists may reveal the fact that two or more entries for disease in the same person may possibly be shown as one case. The necessary directions are made in the tables and tabulations of cases as thus revealed.

CASES REMAINING FROM PREVIOUS JOURNALS—A separate alphabetical list of these cases should always be given. This is necessary for purposes of reference when tracing details of sickness in individual patients.

GENERAL REMARKS—In connection with the following diseases certain disclosures of importance for inclusion in the Report of the Health of the Navy.

THE BURNING STIMULUS—Probable source of infection—dates of prophylactic inoculation—general prophylactic measures—proceeds on which the diagnosis was made—whether histopathological or clinical.

SMALL POX—Suspected source of infection—date of last vaccination.

MALLIN—Type when contracted—whether primary or secondary—any details as to prophylactic procedure—whether diagnosed microscopically.

DIAMETER—Type when contracted—suspected source of infection.

VIRULENT DIARRHEA—A short survey having regard to incidence both general and as special features—prophylactic measures and their efficacy, etc., are very helpful.

Should any epidemic arise all possible details should be given concerning causation, spread and prophylaxis.

The foregoing points, if I have succeeded in making them clear, would facilitate greatly the completion of statistics.

Lastly, a word as to the office whose duty it is to examine the journals. There are many journals to be read in the year and they are, of necessity, rather well done. A man does here and there, on the verge of a description of places visited, or other matters of general interest, a greatly welcomed and I hope, suitably acknowledged, digression, of course, should be examined. There was a medical officer, very many years ago, who devoted some pages of his journal to the appalling language used by his women patients and gave spirited sketches of some of the more purple patches. He was sharply reprimanded, doubtless rightly. Nevertheless, there always stood the officer who had the reading of that particular journal.

POISONOUS SPARKS FOUND AT THE WRECKED BAY

By GEORGE GEORGE, R. N. RETIRE, O. B. S. N.

The following remarks concerning the snakes found at the bay may be of interest to medical officers serving on ships on the China Station, as on such ships we rarely all care to visit it, and there have been no more.

The wreck has in its collection nearly 50 specimens, comprising thirty-five different species. The majority of these are *hirculus*—some even have been on that they had no skin, others snakes, etc., while only seven species are definitely dangerous. Of the latter it is doubtful whether any except two, viz., the *hirculus* and the *Arct* are fatal. It is a curious fact that the snakes of the southern end of the Malay Peninsula are generally supposed to be less deadly than those found further north, and on Java and India, even when the same species are compared. For instance, the cobra and the coral snake, both of which I believe we found on India, do not appear to be so here. An exception must be made in the case of snakes which appear to be uniformly deadly. These however, should not be confused

will the birds when caught which might contain a few or a dozen or two to 2500.

Winkles.—No snails, nor limpet shells, crabs, etc., etc., will all endeavor to escape, and also the young of all but the latter, by surprise. They will then turn on the snails, and so, possibly toward crabs, etc. To avoid being eaten, therefore, it is a good plan to tread heavily and beat about the bushes with a stick when walking through undergrowth on long grass, and to use caution in turning over logs, old stumps, trunks, sticks of sticks, etc. As regards the sea snails, they are all very small and the birds need not see them. The limpets that cover the sandy or gravelly water bottoms, who undoubtedly lead their lives there now as the first. The sea snails are attracted by light, and are sometimes to be seen about the grassy way banks at night. Quackenbush should be warned not to attempt to catch them.

Most snails are nocturnal, but are frequently met with in daylight when they are described as then lying up beneath. They are then often gauged with hand and very sluggish. Some live on the ground, most seem to prefer dry ground but others prefer the edges of swamps, a certain number live in trees, while a few make houses in the ground. They are nearly all predatory and live on huge hermit crab, small birds, insects, etc. Some, at the water, are very partial to eggs, while the others seem to content chiefly on clams and eggs. The land-dwelling live exclusively on other snails, and only require a meal about once a month, provided it is a good one.

How to tell a venomous snake. This is not always easy with a species with which you are unfamiliar but certain features are reliable. The character of the belly scales is of very little importance here, since all the snakes have a double row of scales posterior to the anus, with the single exception of the horn, which has a single row, and the horned ray have some of the anterior scales single.

First examine the head, the broad cone-shaped head and the neck of the viper are easily observed as is the vertical pupil, but it must be remembered that there are other snakes which have these characteristics. The head viper can be recognized reliably by two characters—they all possess a deep pit between the eye and the nostril, and they all have small scales on the crown of the head instead of the small hard bony scales arranged in a symmetrical pattern which is found with venomous, or all the other snakes. The only snakes I know of which might be confused with a viper are the following:—

Claspers they have a flesh scale under which lies a skeleton. The head is rather square in shape and the scales on the crown are split up so that it appears small, but a closer examination will reveal that they conform pretty closely to the usual pattern. Also the pupil is round, there is no 'pit', and the nostrils are placed on the top of the snout instead of the sides. The snake, which is very common in all directions on the desert

with black spots here and there on the flanks, and the belly is mottled black and white. The snakes are listed, so that the body appears to have longitudinal ridges. A young python might be mistaken for a viper on account of the shape of its head and the vertical pupil, but again it has large scales on the crown of the head and has three pits instead of one. The vertical pupil and viperine head are also seen in *Enantia* the terrible mangrove snake; *Aspis aspidos* and *A. struthophila*, but again, they have lateral pupils on the crown.

Examine the teeth. In many snakes there are so small as to be imperceptible; in many others there is a large number of long, sharp teeth in both jaws often becoming larger towards the back of the jaw. Although some of them may be venacious to small animals, they are not dangerous to man. If, however, a snake has two large, backward-curving teeth anteriorly in the upper jaw, while the rest of the teeth are inconspicuous, it is almost certainly a dangerous one. *Crotalus*. The teeth are often obscured by redundant mucous membrane, and this may have to be carefully pushed back with the point of a knife in order to demonstrate their true character.

Next examine the scales about the eye. All these snakes have a row of large scales bordering the upper lip, five to eighteen numbers, and it happens that all the specimens constructed by the vipers, which can be diagnosed by the above general laws, two of these scales and two only namely, the third and the fourth, overlapping on the eye. In examining these scales, take care not to include the root or dorsal side; the first lateral is immediately posterior to this.

The character of the lip is affected. According to some authorities this should be a guide, since it is to be expected that the lips of a venacious snake would show the position of the two fangs and nothing else, while that of one of the other snakes would show a number of punctures, as more probably innocuous ones: a snake poisonous or otherwise, does not just make one 'snap', on the contrary, he holds on like a boiling until he is pulled off. If it is a poisonous one it is catching its victim all the time that its fangs are embedded in the object. However, the punctures made by, for example a cobra, may be so minute as to be invisible to the naked eye. Therefore appearances may be deceptive.

It may, however, be pointed out that a large number of poisonous and venacious are present: the snake is probably not a venacious one, but if there are two punctures which continue to open blood stained areas, it is almost certainly the lip of a venacious snake, while if there is blood oozing and pain the dangerous is clutched.

If, however, the punctures show quick drying and clotting of the blood, and there is no rapid local reaction, the probability is that the lip is non-venomous.

An interesting illustration occurred here a few months ago. One of the sick birds died, after looking at the tea, informed me that he had been

bitten by a sea snake. There was one puncture on the groin the showing a drop of blood. I collected him that he must and as he said yes, as, had it been a sea snake, there would have been two punctures and he would have been dead by this time. Being a most uncooperative, he grunted dumbly and went away quite unharmed. But about an hour and a half afterwards he developed alarming symptoms of collapse, great pain at the ribs (which, however, showed little local reaction), pain up the leg and swelling of the thoracic glands. He was treated with anti shock measures, stimulants with totally and collapse of the heart about the late with extreme and ultimate, and though he passed a bad night was quite well on the morning. From subsequent investigation I am convinced that the lesion was due to the puncture of the spine of the *Alan* snakes a poisonous fish which is found here.

List of Poissonous Snakes Collected

(1) *Colubrine snakes.*

Coluber (Naja) naja

Hemalysed or King Cobra (Naja leonurus)

Malayan Krait or Banded Krait (Bungarus fasciatus)

Coral Snake or Sealing-worm Snake (Masticophis lateralis)

Masticophis lateralis

(2) *Typhlopidae*

Leptotyphlops curvicaudatus

L. naja

Coluber (Naja) naja. Fig. 1.—This is very common. It may be of any length up to six feet. Colour uniform deep blue black except for some sandy dirty-white markings on throat, not extending to the dorsum. Snout has a single appearance on crown of the snout ending of the body scales. There is a large and fleshy fold on each side of the neck which in the dead specimen represents the head. This can only be properly seen when viewed by the strong mouth when it has a spoon shaped appearance—hence the Malay name *naja* being snake or spoon-mouth. It is a membranous structure supported by the prolongations of the lateral process of the cervical ribs. The mechanism of extension is chiefly due to thread-like muscles attached to them. In young specimens a large pulsating blood vessel can be seen through the membrane on either side, as it seems probable that venous blood plays a part. The head is broadly oval, rather behind, and the mouth blunt and little distinction between head and trunk. It has two large prominent fangs in the upper jaw between nostril and eye. The eye is placed very far forward and is covered by the upper eyelid plates, so that it is invisible from above. The poison glands can readily be demonstrated on dissection. They are rectangular in position with the parietal gland and measure quarter to half an inch in length, according to the size of the specimen. They are not very dark or bluish, but are solid glands, and each is connected with the fang by a fine duct.

Habit.—Inhabits grassy and open lands. It is usually rather sluggish on the ground, but it leaps with extreme precision at whatever is moved even from a distance as quick as thought. When toward it becomes very fierce and quick as a rattlesnake etc. Its color is darker however, in such cases the hindpart of its body erect, while the rest of the body is depressed on a thin spiral of three or four curves. The head is then expanded, and it looks broad and open like a cat while its red-forked tongue darts out.

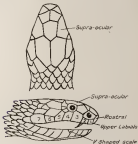


Fig. 1.—Head of snake.

usually roll through a small aperture formed by a scale in the apex of the snout. The apical part is about a quarter of the total length and this is the head of its striking device. It can however, open its mouth a distance of four or five feet. This is known as the prehensile skin and should be washed off with soap and water. It would possibly have a noxious effect if projected into the eye but would probably not be dangerous in contact with a small animal, since its power is quantitative like other poisons.

The effect of snake venom is like that of other poisonous poisons, i.e., it acts primarily on the central nervous system producing first paralysis of

the lower jaw remains thus a deepening in position and the colour will be unable to stand; later the neck will also be transparent until the eyelids drop the jaw stays the lower lip falls away from the jaws as does when withdrawn from the mouth, and finally death supervenes from paralysis of respiration. According to examples quoted by Wall the legal term, if it occurs, may be anything from one hour to twenty-four hours afterwards.

There are very few snakes really resembling the colour of one found in most the western states, both directly and ventrally and the complete absence of bands or markings except the white blotches above mentioned. There is, however, one American snake which may readily be mistaken for a young cobra, viz. *Agkistrodon contortrix* (fig. 2). It has much the same coloring, but lighter and more bluish, the white markings are much more in evidence and there is usually an irregular white collar on each side two



FIG. 2.—Head of *C. cobra* & right lateral view.

behind the head, as there may be two or more depending on the age of the specimen, but in other specimens all the markings are obliterated except those at the neck also the colour is different, thus increasing the resemblance to a cobra. The young up to 5 or 10 in. in length, show a complete series of white and black rings as it, whole length for which it is sometimes mistaken for a banded aspid. The belly is much paler than in the cobra, and the scales have pale edges also the scales are smooth and not retreating as in the cobra. The head is much narrower and does not expand behind and there are no horn ridges as that the eyes are plainly visible from above. It has a large number of long sharp teeth in both jaws. Two certain distinctions from the cobra are: (a) the absence of a small V-shaped mark on the lower lip, and (b) the anal scale which covers the anterior margin of the vent is light in color whereas in the cobra it is white. The length seldom exceeds 75 in.

So deeply does it resemble a young cobra at the first glance, that the writer once handled quite carelessly a young cobra in the belief that it was a *Liaspis*, and was only undeveloped when, on being placed on the stage, it not only expanded its hood and spat at him! Since then he has been more cautious.

Hemadryas or King Cobra (*Naja sumatrana*).—This snake is not very common and grows to a much greater size than the cobra. It may be up to 12 ft. the two specimens obtained by the writer measured 8 ft. and 11 ft. respectively. It closely resembles the cobra except that it has a broader head and its coloring is a rich ochraceous, with transverse orange markings on the head and neck, while the broad diamond-shaped scales of the body are black edged, especially so on the tail. It is more dangerous than the cobra, as it can inject a greater dose of poison, which is said to be more toxic, also its striking distance is greater as it can raise its head a whole length and project its body forward to strike. It is more fierce and aggressive than the cobra, and there is a consensus of opinion that it will attack and even pursue man unprovoked. The larger one in my possession was observed to kill a cobra half its size in a few seconds, and I have heard an unfavourable tale of a native dying within an hour of the bite. It feeds almost entirely on other snakes, even its own species.

Bandel Krait (*Bungarus fasciatus*).—Very rare: the specimen in my collection is only the second recorded on Singapore Island. This specimen is 4 ft. long. Colour very distinctive, alternating bands of black and cream colour of nearly equal breadth. Head very small in comparison with the stock cylindrical body, but stout and broad sided, and having a rough row of scales on the under surface posterior to the rostrum. A distinguishing feature is the row of large, overlapping hexagonal scales along the sharp vertical border. Judging from analogy with other kraits, it is probably very venomous. It may be confused with the following: (a) One of the two snakes, many of which have black and yellow bands, but in all of these the tail is broadly compressed, like that of an eel. (b) A young *Liaspis culicoides* (note negro), (c) the common "mangrove snake" (*Naja dendrocephala*) which is about the same size, which has black and yellow bands, but the yellow bands are bright golden and are much narrower than the black, and are unmarked over the dorsum. These yellow bands fade to white shortly after death, whether the animal is preserved in spirit or not. The head is large and somewhat upturned in shape.

Candrababu, looking-glass Snake (*Masticophis lateralis*).—Called by the Malays *melakudang* (quartzite), it is fairly common. Its coloring is so distinctive that it could not be mistaken. Dorsum blue on the dorsum, sky blue on the flanks with a black line below that, belly coral pink, tail 1 inch or very short bright vermilion. The red colours fade very quickly in spirit. Though not fatal, its bite causes very severe pain and swelling, and sometimes gangrene ensues as has happened of the parts bitten. Its near relative is *M. macleodensis*. Not so common, general colour brownish with

a bright red streak along the dorsum, tail vermilion, belly pale with black cross bars.

It might be mistaken for *Uta* *stansburiana*, *Batrachoseps*, which also has a bright red stripe down the back, but it has four black bands down each flank (from which it takes its name), it lacks the vermilion tail and the belly has no cross-bars.

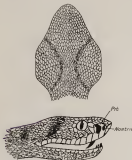


FIG. 2. Head of *Uta*.

We now come to the viper (Fig. 3). The poison of vipers differs from that of colubrids (to which all the foregoing belong) in that it acts principally on the heart and is a hemolytic agent. Hence the punctures will soon blood-poisoned system the venous will show distention, while subcutaneous and internal hemorrhages occur. In fact the appearance is similar to those of purpura, or sepsis produced very rapidly (Wall). The

to be undesirable that too accelerated circulation should be maintained in the stomach when its resistance to another incoming response is important. Another point is that, according to experiments quoted by Wall, the application of a tourniquet, however rapidly and nevertheless tightly applied as important to prevent the entrance of a fatal dose of toxin into the general circulation in a few seconds. The argument that alcohol hastens the absorption of the toxin, therefore, seems to lose its force when the toxin has been absorbed before the giving of alcohol. In the case of producing effects of response have, however, there seems to be a better case against the administration of this drug.

Concerning the application of a tourniquet upon its efficiency seems to be doubtful and it is possible that severe cases of gangrene attributed to snake venoms may, in reality, have been caused by the too thorough and prolonged application of the tourniquet. In this connection Wall lays great stress upon the importance of the rubber tourniquet above all others in securing the absorption of toxin. The primary and early free removal of the toxin of the bite and the application of pressure per se would seem to be regarded as the most important part of the treatment in attacking the poison and restricting it at its source. Wall suggests the injection of H₂O on the same principle of occluding the veins.

From a very small experience of such cases, such as eczema and eczema-like and pemphigus-like skin, the writer would like to suggest that the application of the paste does the bite with a hypodermic injection of cocaine and alcohol might be effective in such cases. The procedure has the double effect of reducing the absorption of toxin and the removal temporarily at least, of pain. The removal of pain and anxiety is most important, as it greatly enhances the morale of the patient. It is doubtful, however, if this would produce any good effect in the case of a definitely neurotoxic poison such as that of cobra. In any case the response of salivary, or better, pituitary, would appear to be a useful assistant in cases of either colic or response poisons.

Calcium salts.—In all response poisons it is reasonable to suggest that the exhibition of these salts would be beneficial, since the response depends largely upon the loss of power of coagulation of the blood. There, loss the supply of calcium should help. Administration of salts by the mouth, however, would probably be of little use, on account of the slow rate of absorption of calcium from the stomach. Therefore the mode of treatment should be intravenous.

Antivenom.—The effects of such preparations must of their nature be specific and, if we consider the highly complicated organic nature of these poisons, must be largely dependent upon the age of the preparations used. Anything above a year old must be regarded as inert. It is conceivable that the injection of a crude antivenom serum might produce 'protein shock,' and so save the patient.

THE PROPERTIES AND APPLICATIONS OF 'VITA' GLASS¹

By F. H. LAMFORD, M.A.

A LECTURE ON THIS SUBJECT WAS RECENTLY DELIVERED BY MR. F. H. LAMFORD, M.A. (late Fellow of Trinity College, Cambridge), before the Royal Society of Arts, under the sponsorship of Professor Leonard Kishner M.B., M.R.C., F.R.S.

The lecture dealt with the last few years' efforts in the manufacture of glass had been devoted to the production at the least possible cost of large sheets without flaw or distortion, free from visible colour, and resistant to the weather. Whilst modern compositions of glass had been developed for the manufacture of coloured glass for architectural purposes, glass of great brilliancy for table ware, glass with special chemical and physical properties for laboratory vessels and illuminating apparatus, and glasses of very varied compositions to meet the existing demands of optical instrument makers, the composition of window glass had only been varied in order to make its visible properties as perfect as possible. Modern optical research had, however, brought to light a very important defect of ordinary glass from the health standpoint, for it had been proved to be opaque to the most beneficial rays of the sun. In order to remedy this fault, Mr. (the lecturer) carried out investigations in 1918, with the object of producing a new window glass having special transparency to the health-giving violet rays. Early in 1920 the first full-scale melting was made of window glass designated "Vita" (Vitality) previous to the health rays.

In order to describe more fully the special property of the glass it was necessary to touch on the physical aspect of the problem. Heat, light and sound were effects which were observable at a distance from the source of energy, the energy being conveyed by wave motion in an intervening medium, and the wave length determined the nature of the energy. Thus when we were pulsating with a wave-length of a few feet the we should be in tune and give the sensation of sound, the pitch of the note being determined by the wave-length. In the case of light, however, we are dealing with waves in the medium which also conveys a note, often noted and observed colours, and the chemical reactions which are used as "carriers" on wireless telephony and telegraphy all travelling with the same velocity, 185,000 miles per second. Wireless broadcasting stations are giant waves of hundreds of miles from track to track but the same

¹ Reproduced by the kind permission of the Royal Society of Arts, and was so indicated by Mr. C. W. F. Wilson, 11, Kensington Hall Gardens, West Kensington, London, by the request of the lecturer.

lengths of visible light, we see, among the tiny ripples of green light have a wave length of but one five-thousandth of an inch or thereabouts. Expressed in terms of the unit "Angstrom Unit" (one ten-millionth of a centimeter), green light would be said to have a wave length of about 5000 \AA . In detect weather waves none so less adequate apparatus is necessary which may be tuned to measure with these waves and so absorb them. Our eyes can, however, tune to the tiny ripples of about the dimensions indicated, and so detect them by going on the sensation of light.

Newton demonstrated by the use of a prism the splitting up of white light into a band of colors, or spectrum, ranging from violet to red. The extreme red waves have a wave length of about 7000 and the extreme violet 4000 and the eye is sensitive to all intermediate wave lengths and distinguishes them by color discrimination. Beyond each end of the visible spectrum there is a range of values on the radiation from the sun rays which can only be detected by means other than sight. The rays beyond the red end, the infra-red rays, give the sensation of heat and are usually detected and measured by their thermal effects. Beyond the violet end the rays, here very slight heating power and are frequently detected by photography. A body heated to 300° C. emits radiation mainly in the infra-red. At higher temperatures the body begins to glow and its radiation comes within the red end of the spectrum so that the body appears red hot. As the temperature is raised the radiation shifts more and more towards the violet end of the spectrum so the glow becomes more yellow and eventually a white heat is reached. Some stars are hotter than the sun are an intense bluish heat. The sun's radiation corresponds, in fact, to a body temperature at about 5000° C. and its maximum intensity is in the visible spectrum the strength falling off in the infra-red and rapidly in the ultra-violet region.

Ultra violet rays of very short wave length are harmful to the eyes and skin but we are protected from them by the atmosphere particularly by the ozone in the upper layers and the bulk of the ultra-violet rays which reach the earth's surface is nearly below wave-length 3000. It is now generally recognized that the radiation which has special biological value extends from wave length about 3000 \AA downwards. It will therefore be seen that the beneficial natural ultra violet rays which we experience in our climate are for the most part excluded by the wave length range from 1000 to 3000 \AA . Ordinary glass is practically opaque to rays below 3000 and therefore obstructs the beneficial rays. The few glass transmits radiation well below wave length 1000.

The permeability of the face glass to the red rays which are so valuable to life may be shown in various ways. These rays cause warmth and penetration or leaching of the skin and the effect frequently is easily as marked when the glass is used to shield the red to without the

eyes. Ordinary glass windows were then, practically, presents that admit. The taking of a special blue dye has been used by Professor Leonard Hill to measure the amount of visible rays transmitted by the glass, and has shown that certain small exposures—infrared—are killed by these rays after passage through 'Violet' glass, but are completely protected by ordinary glass. The best visible demonstration is given by the use of fluorescent substances such as calcium glass, or various dyes, which have the property of glowing, or ultra-violet rays. In making the experiment the beam from a mercury vapour lamp is filtered by a film of silver deposited on quartz or glass. This glass, so that rays chiefly of wave length 5141, are isolated and produce the glow of fluorescence. The interposition of a sheet of 'Violet' glass only slightly reduces this effect, but a sheet of ordinary glass practically extinguishes it. A photographic printing test may also be used with the same arrangement.

The ancient Greeks perceived heliotherapy, and known when were certainly cases equipped with steam or sun rooms. But it was not, however, until the last decade of the nineteenth century when the most careful scientific work was carried out by Finsen, who soon noticed that ordinary glass destroyed the special therapeutic property of the rays, but in his apparatus he made use of lenses of quartz which freely transmit ultra-violet radiation. The early part of the present century saw the establish-ment of a sun clinic by Dr. Bernhard at St. Moritz, where patients lay exposed without clothing to the outside sunlight. The value of this pioneer work was at once recognised by Dr. Kauter who played a considerable part in establishing the importance of outdoor sunlight in the cure of various forms of surgical tuberculosis and other diseases. Similar work has also been carried out in this country with great success by Sir Henry Gustave and other workers.

The use of ultra violet rays in the prevention and cure of disease has a new branch of medical science, and the importance of these rays in bettering the general health and well-being of mankind is practically universally recognised. Whilst extensive bare body treatment is necessary to effect the cure of certain diseases, comparatively slight exposures of small areas of the surface of the body are sufficient to have valuable effects. Tubercles and tuberculous are two of the most important diseases for which exposure to sunlight is the best possible remedy. Joseph Lee has been known to children which characterise the very widespread disease of scabies in due to unsuitable food and lack of the sunlight which gives the body power to absorb the food building elements calcium and phosphorus. Finsen tells us Kauterian, Dr. Leonard Hill states that, 'even the small amount of light in a sunny day suffices for the cleared skin at out of doors all day. If food is deficient in vitamin D sunlight will make good this deficiency by producing this vitamin in the surface layers of the skin.' It has, however, been amply proved that ordinary window glass transmits from sunlight the rays which had the preventive or curative effect.

Shortly after the introduction of the "new" glass it was proved experimentally by Dr. Leonard Hill, in the case of man, that it did not differ in vitamin D from the glass which allowed the passage of the rays from a mercury vapour lamp which penetrated redskins whilst ordinary glass obstructed the beneficial rays. In America, in 1937, similar tests were carried out at Boston by the Council of Physical Therapy of the American Medical Association. In this research three different groups of young chicks fed on dietaries that were kept at separate temperatures facing north and receiving light as follows: (a) sunlight through ordinary glass, (b) diffused light of laboratory through ordinary glass, and (c) sunlight through "Vita" glass. The chicks were weighed at the commencement, twenty and fifty days after hatching and at intervals throughout the test. The development of "big weakness" being shown by appearance and by x-ray diagnosis. It was found that of the chicks of groups (a) and (b) developed rickets, and after forty days the weight had increased 3.6% and 2.4% respectively. In other words, no completely were the anti-rickets rays excluded by the ordinary glass that bright sunlight received through it was just as effective in preventing rickets as the weak diffused light of laboratory. On the other hand, out of five hundred chicks in group (c) only two showed any trace of rickets, and the weight increase was more than double that of the other groups. The results of this experiment, carried out in winter, have been widely confirmed by the experience of poultry houses at the use of the glass. Similar tests have been carried out in the case of rats exposed to light from the north sky through ordinary glass and through the special glass, and these have proved the presence of the anti-rickets rays in the light from the north sky.

Ultraviolet radiation not only assists the formation of sound bone and teeth but also increases the biochemical power of the blood thus helping it to resist infection. Whilst, however, outdoor sunlight is ideal under favourable climatic conditions, modern life deprives the majority of us from enjoying this "Vita" glass therefore comes to our aid in helping to give us the next best thing to direct outdoor sunlight and makes it possible for us to have windows which, at any rate, will not remove the north beneficial part of natural light. Many successful installations with sliding roofs or windows give the fullest access to open air. The glass has already been adopted in over 150 hospitals in the country, being used particularly for roofing open-air wards and for sun terraces, etc. It is also extensively used in homes, schools, and private houses, where it is the source of great much of the benefit of outdoor sunlight to those who otherwise, during the greater part of the year, would have little opportunity of exposure to the beneficial rays.

It is frequently supposed that direct sunlight alone contains the natural health rays and can give health. This is not the case, however, for the light derived from the clear sky is rich in the ultra-violet rays. The blue colour of the unclouded sky is due to the "scattering" of the sun's rays,

by particles in the atmosphere which are small compared with the wave length of light. Thus scattering is much stronger in the case of the short ultra violet waves than of the longer visible waves and, when the sun is shining in a clear sky a horizontal surface receives considerably less ultra-violet radiation than the direct radiation than from the whole of the sky within the sun. In the daytime it is much cooler than the meridian. Heliotherapy can be practiced by exposure to north sky in cases where it is important that there should be no interruption to heat. This fact therefore indicates that the use of the sun glass need not be confined to the parts of a house of more or less southerly aspect, though undoubtedly of greatest value in such positions. It is, however, important, when the glass is used on windows facing north that these should be large, and it is desirable to be near to the window so that light from a large area of sky may be received. In the case of rooms where the natural light is weak, the glass cannot have any valuable beneficial effect.

When Vitreous glass is exposed to sun there is a small amount loss of transparency to ultra-violet radiation but after about a month a steady state is reached, and there is no further loss of permeability. In most of the common cases which have given such good results, the glass was installed for some time before trials could be carried out, and therefore this small deterioration had already taken effect, and the glass would not deteriorate further with longer of time.

Transparency to ultra-violet radiation is not the only property of importance in glass of this kind. The glass must retain this transparency without important loss of exposure to sunlight, and it must be resistant to atmospheric attack. In addition glass which is used for living rooms must be as free as possible from visible defects which would detract from its use. It is possible to produce a glass of transparency to ultra-violet, far beyond the limits of the sun's spectrum, but the surface of such glass becomes corroded by damp, and the material is therefore quite unsuited for windows though useful in special optical instruments. In view of the fact that all the necessary qualities are combined in the glass, the time may be envisaged when at least the sunny windows of all rooms, school, and factories where people live and work will be fitted with glass which does not obstruct the most beneficial rays of the sun.

Continuing the lecture last, very frequently questions are asked as to what is the transmission or efficiency of the glass. The efficiency figure of the glass depends on many factors, one at least of which cannot be dealt with concretely. These include (a) the relative beneficial effect of rays of equal intensity but of different wave lengths; (b) the intensities of the different wave lengths present in the particular incident light; and (c) the transmission of the glass for rays of different wave lengths. The first of these factors itself probably depends on the use to which the glass is put, e.g., prevention of colour, etc. However, it is necessary to give some rough estimate and we shall probably not be very far out if we take our measure

of the efficiency of the glass for transmitting natural ultra-violet light rays the percentage transmission at wave length 3,130 (the being chosen for the correspondence with a mercury spectral line). The glass usually composed of regular transmission and resistance to deterioration, after passing a permanent condenser, transmits the 3 mm thickness about 55 per cent of 4,130 which may be taken as its approximate efficiency figure. On the 30 per cent dimension, 5 per cent of the original intensity is lost simply by reflection at the two glass surfaces and the rest by absorption.

Clinical Note

AN UNUSUAL PROBLEM

Dr. JEROME CARPENTIER F. WILSON, PHOENIX

A stout well-developed and well-covered man of 40 was admitted with history of long sharp chronic pain along a heavy support of linked metal. He had had generalized rheumatic pain with swelling and stiffness, headache and general malaise, but no complaint of tingling or numbness in the hands, feet or the limbs, back and shoulders, headache and general feeling of illness, without any definite tingling symptoms.

Previously to the onset of his symptoms he had always been very healthy, and had had no chronic illness though he had been in Germany.

When examined on admission he was nervous, restless and restless looking. Pulse 115, temperature 100.5° F., respiration 22. Tongue dry, throat hot, pharynx normal, pulse soft and thready, heart normal, lungs no signs of abnormality, very hot with extensive subcutaneous hyperemia but no rigidity, no loss of resistance, enlargement of vessels or tendons found. Though there was slight tenderness on deep pressure in the right knee region. Pulse rate normal. Urine, trace of albumin. Leucocytes, 11,500 per cent. He had normal eyes, steady after admission, but his subcutaneous hyperemia increased and he was considered to be a case of influenza of the rheumatic type.

On the second day his subcutaneous hyperemia decreased with some tenderness on deep pressure in the right back in the lumbar and thoracic, pulse and temperature remained at the same level and the bowels were opened normally. Though the question of appendicitis was mentioned, the surgeon did not consider it advisable to operate, as the signs were considered as not the symptoms of disease. Cramp-like and signs of weakness appeared at the base of the right leg on the third day, legs and right arm normal.

On the fourth day he became slightly prostrated, with complete loss of strength from 100° to 105° F. and signs of fever on day. He was prostrated to be on his back with the right thigh slightly bent in the stomach and had deep tenderness in the right back, with some tenderness in the stomach, though there was no rigidity or swelling, no definite complaint of pain or stiffness or weakness.

The leucocytes were 11,500 and appendicitis signs were negative to 5. Urine T. N. & C. The amount of urine passed was found in the blood. The case appeared to show a case of influenza, but no fever or rigidity. The lower extremities were in a state of tension between the right and left. He had no respiratory symptoms though the respiration was normal at the right lung base in the posterior axillary line.

For a month he continued to have swinging pyrexia, rapid about once a day for hours more or less, but never to high any tendency to suppuration, other than general weakness, slight cough and some frequency of micturition. During this time he was attended by nearly every physician and surgeon in the hospital, to no avail.

On the twentieth day after admission, the pyrexia gave it up as evidence for the most minute study, though there were no microscopic deposits, and only a few leucocytes and red cells by microscope. The diagnosis was considered to be one of metastasis of it due to the kidney, without some of the features of the urinary tract (which proved correct). The leucocytes count varied from 1,000 to 10,000, with (probably increasing) percentage of polymorphonuclear cells.

Examination of the blood by many experts, a ray of the chest and elsewhere, examination of the urine and feces, all proved negative, and treatment by mercury and intestinal antiseptics, salicylates and diaphoretics were all to no avail.

Operation.

After consultation with the consulting surgeons and on his recommendation, an exploratory laparotomy was performed, through an incision below and parallel to the right costal margin.

The liver was rather firm, but not enlarged or inflamed, and the gall bladder was normal. The stomach was difficult to pull up into the wound, but nothing abnormal was felt by a hand passed down inside and towards the right iliac region.

The wound was closed without any further interference.

The wound healed up well but he became sicker, rather and less cheerful and lost more weight, though the temperature continued to swing between 99° and 100° F., with evening evening, loss of appetite, and sleep longer. Further bacteriological and urine investigations were all negative and the patient died four preliminary infection, quite suddenly on the eighteenth day after the operation.

Remarks.

(1) Chronic appendicitis, the suggested being in an ill-absorbed chronic variety looked right away in a point behind the abdominal junction with an inflamed cecum back looking away from it.

(2) Portal pyelitis, the liver and pancreas being full of any character, and the portal vein full of pus.

(3) Early degeneration in the liver and the kidneys, and absorption of both long bones, right side being more affected.

Discussion.

With great discussion. (1) The extreme difficulty of diagnosis in most cases of appendicitis. (2) The desirability of early operation, not only in the type of case which leads rapidly to perforation but also in the more usual type which is with less easy to diagnose with absolute certainty. (3) The occurrence of some lymphatic infection, or else the absorption of sepsis initiated by the portal system, meaning infection of the liver, which may obscure much looking by it. (4) Also possible there are always small gall bladder changes.

SOME PRACTICAL NOTES

BY VERNON FORBESMAN, U. S. N. SENECA

SCIENCE.—The specific speech system, when it breaks down in a ship, is not as much the result of using the device but the difficulty of finding the means of communication, when this occurs especially in the same group of men. During the year 1920 on U. S. S. *Albatross*, I was faced with such a problem (and thought it might be of interest to record the history of its ultimate solution). This article will record a good deal of the experience as it occurred in the communication department of a battleship. On April 10 a telegrapher reported work contact. All the telegraphers and signallers were contacted at once and five men were found among the bottom. The usual machine facilities were tested out and they were kept under observation for a week after they were contacted again. These studies, logs and messages were passed through the entire machine and their success and the W. T. contacts were daily recorded and each disseminated field.

On May 12 all the telegraphers and signal ratings were again contacted and examined. This time four more of contact were found, all of which again were telegrapher ratings. The same procedure was taken in regards distribution. On June 6, ten more were contacted among the same ratings.

On July 14 these ratings were again contacted and two telegraphers were found to have contact.

On September 5 two telegraphers were found to be contacted.

Two things were quite clear. Only three of these men were possible telegraphers. The methods employed to destroy the contacts had, but, a complete success.

The telegraphers and the signallers worked together, which suggested that one should look elsewhere than the main for the trouble.

No signallers, except within the battleship had it to be looked for where the telegraphers and the signallers worked apart. This narrowed our responses down to the W. T. contacts in the immediately plane.

Since the trouble occurred in June these contacts had been recorded and duly with dissemination had.

In July, Sergeant Lieutenant E. C. Rogers had remarked that the worst failure in their work appeared to be that the officers, where the men would run, on a deck in response of using a telegrapher's key in signaling.

Special duty had therefore been taken to distribute the tables used by these men in the W. T. contacts. But such work was required.

I examined their tables very carefully since by that time we felt sure that they were at fault. They found these tables had been more severely spoiled, so that the grids of the upper stood out and the machine was rather irregular. I suggested that they stand off in field and a suitable water proof table made of such a material that could be disseminated duly and burnt weekly, waterproofed out. I drew from the signal store a supply of American cloth as having a suitable material. White cloth was chosen as this seemed likely to resemble the men in the machine, and record them at the duty station of working with dissemination had.

Now the cloth was fitted there but not here, a couple sets of tables among the telegrapher ratings. It has not been necessary to secure it more than once and the quantity necessary to protect the officers of the ship.

Since the condition of the battleship was somewhat other condition of trouble previously. I think that one is justified in supposing that better tables were now found a table replaced the most of the tables where it was not from the duty ratings with American cloth, but that is based on the month water proof tables of the American cloth.

Now when June comes. An accident occurred on board U. S. S. *Albatross* by which five men were injured by being splashed with strong sulphuric acid.

came to the water again and let me stroke him freely over his legs and then over the back leg. His legs were washed with oil and lanolin and dressed with vasoline. He was very tame, but only getting a crop for history. He returned to duty in a few days' time.

Case 3 was a feeding animal who was regurgitating the remainder of a meal. He was lightly splashed on the sides, but severely on the legs with olive oil three days on the right side. He went straight to the water again and washed his left leg thoroughly but his right leg has not. On his leg was a red, pattern map of the work of the sand and had been drawn in small strokes.

The web wound left leg gave him trouble, but the right leg became very painful during the night and his temperature rose to 100° F. Next day the scales of the web were marked by radiating itching scratches surrounded by red areas of inflammation.

He was put into a bath of red lanolin and as much of the scales and shingles as could be removed by gentle rubbing were rubbed off. The web was dressed carefully and lanolin ointment was applied to it the first time. He continued regurgitating about a day and then his temperature fell to normal. He lay for a week or had no contact without any inconvenience. Then the scales and the fungus to be killed off by gentle treatment under a. He was again put into a bath of red lanolin and efforts to convert the deep yellow shingles were made but were not successful. The leg (right) was dressed and a thick film of lanolin ointment applied. This, however, had failed by the next day, and was removed and his temperature had risen to 100° F. and the shingles were beginning to appear. His lower limbs were applied and on the day was going into dry skin the case was discharged to Columbia General Hospital. I treated the shingles about 10 days, separately. At last the leg was dressed with lanolin and hair with barley. The web was powdered with red lanolin and he regurgitated the crop before the web. I found that the shingles there were still a good area healed. The ear parasites were removed and on the outside of the ear there were remains of organic film looking up about 4 or 5 above the ear basket. Some of the same film was on the head of the head but he thought it to be signs of any locomotor development.

Case 4 was the T.D. in the care of the party. He was about 4 or 5 years when the ear was dropped. He was a hind as he used to be in the Indian land, jumped into a bath where happened to be lost. He had several lesions on the web, which looked exactly like lameness with lanolin and more extensive lesions on the legs, especially the right leg, before the case.

The left leg did very well with lanolin and had not the right one. At the end of the web the scales and hair pulled off but in spite of efforts to convert it could not be successfully resupplied so that lameness was applied. The web, discharged to hospital as the case went into dry skin at Columbia. He was treated to hospital with lanolin ointment and having had glass after the shingles had appeared. He regurgitated the crop before the web. The lesions were not quite healed after a month, but were doing well with lanolin powder dressings. They were a better case were much more shallow than those of Case 3.

Case 5 was a girl by the name, splashing with the sand and had the feet that the lesion got into a bath and rapidly healed the web and may remain to her getting off the web highly of the web.

I was more than satisfied with the lanolin and treatment and had faith in the case. I shall apply it in case and shall not be so a hurry to remove it as was in case before to let the film. In case now I let the film in case of the coming out (Case 1). The shingles remained on a few days and having progressed well lately.

These findings prove that the patient's condition will relieve him of the pain and severity of the shingles of shingles, which is, in laying to the value of the shingles.

A CASE OF WHITE HEMORRHOID Proliferation.

By BENJAMIN LEVINE, M. D., CHICAGO.

W. J., aged 52, Male. Admitted to B. K. Hospital, Bklyn. on the morning of August 7, 1920.

History.—When a small child just on August 5 he had a severe attack of vomiting and diarrhea, accompanied by much pain in the abdomen. On the night of August 7 he was seized with acute abdominal pain. The pain doubled him up and kept him awake all night, the vomiting and diarrhea persisting. On the morning of August 8 the pain became even more severe, and a medical officer who was sent by our hospital to his home, advised him to be sent to Bklyn.

On admission.—He stated that he felt better than he had done all day. The vomiting and diarrhea were then and the pain ceased.

T 100° F. P 100. S 34. Rectum is about 10-15 cm. The bar was pushed and down, tongue moved with each intake for 3-4 cm. Stooling observed to be loose in the stool. The abdomen was not distended and was tender all over. No rigidity or hyperreflexia. No mass to be felt.

In view of the statement that he felt better and that the symptoms were subsiding, it was decided to defer operation and to keep him under observation. His vomited and diarrhea continued of bile and mucus. No stooling was passed.

On the following morning (August 9) his condition had improved slightly, inasmuch as the vomiting and diarrhea had ceased. When this his condition was much the same. However on the evening he was worse. He was now drooping and retching continuously. The abdomen was somewhat distended and upper umbilical area was tender to the appearance of his distention. For several hours a vomiting could be felt in the rectum and sigmoid. Lumbago came to him. It was thought that some more abdominal condition necessitating operation was present, although no definite diagnosis was made.

Operation.—The peritoneal cavity was opened through a median sub umbilical incision and found to contain a considerable quantity of blood stained fluid. There were no signs of acute peritonitis beyond enlargement of the omentum. The appendix was normal and no pus was present in the pouch. The mesentery was attached normally and the great duodenum and stomach found to be normal. A mass the size of a duck's egg was felt in the region of the pancreas and a careful search revealed numerous areas of spread of material in the omentum, obscuring the diagnosis of acute pancreatitis. The transverse mesocolon was opened in the pouch area, and a drainage tube inserted down to the head of the pancreas, the tube being carried to the edge of the opening to fix it in position. The peritoneal cavity was cleared of fluid by means of a suction apparatus and washed. The abdominal wound was closed completely except to the extent where the tube was brought out. The wound was dressed, and the end of the drainage tube placed in a separate bag, well disinfected. Blood cultures and biopsy were ordered to be submitted every four days.

Course.—August 10 he felt better, abdominal pain less, still some vomiting and retching. T 101° F. P 100. S 34. In the morning the vomiting and more frequent and the abdomen somewhat distended. He was ordered 50 cc. of pus from immediately every six hours until signs was gone.

August 11.—His condition was very grave. The drainage was obstructed. Pus was not discharged. In addition to the presence of pus in the omentum, a suppurative process was evident. The drainage tube was removed and a new tube was passed. His condition considerably improved. The drainage started and he had a good night's rest. From now on his condition steadily improved. The tube was left in position until the twenty-first day after the operation. The wound healed by first intention, the patient being comfortable for nearly two weeks after the operation.

At the time of writing the patient is comfortable and the other track is filling.

up by prosthesis. During convalescence the child and even his home were sent periodically, the only abnormality found being an occasional faint trace of albumin with trace sugar (10, 200 mg) (maximum amount 2.500 gm week) in the urine.

Remarks.—The sequence of events in this case would appear to be: (a) acute post-infective set up by the rubella; (b) tubular spreading from the ductules into the paracortical duct in the prostate; (c) acute prostatitis.

SCHELTEN'S AFFAIR.

By ROBERT C. CROOKHAM, M. D. FINGER

Tennisman's proptosis of the third eyelids appears to be getting more common. In my club the epidemic is now frequently diagnosed in boys between the ages of 10 and 15 who play strenuous games such as tennis, football, and croquet. During the past two and a half years I have seen no case of this rare disease outside the circle of tennisists. These cases are made from observation of these men.

The original cause of the trouble is usually unknown but occasionally a fall in work, blow, or strain coincides with its commencement. One man in this series stated that his trouble started with a kick in the knee at football. Another remembered that his knee became painful after his first "kick about" in the commencement of the football season. The symptoms come on suddenly, the patient notices it at the moment of the blow, tends to rub his eyes with both eyes with much excessive gaze than he plays. By the time that he notices redness where something wrong has been noticed he is finding tears and when so long as a month.

It appears probable that the original injury is a partial separation of the tubule due to a blow or some excessive exertion. Afterwards each time that the quadriceps is brought into powerful action, there is a tendency to increase the separation and set up local inflammation.

Croquet, football, and croquet are the games chiefly associated with this injury as against that fact that the eyes are chiefly affected the fact that it is right hand before feeling the elbow and even worse, as football rather the kicking leg or stationary leg may feel the strain. At croquet either leg may be affected by quick stopping and starting.

In this series neither exposure to sun rays, football legs was doubtful.

The diagnosis of the condition is quite easy, though cases very occasionally do happen resembling the disease of the female. A severe case complains of pain in the region of the tubule. This pain is made worse by any movement of the quadriceps tubule. It is made noticeably so when complete extension, and even rapidly and to work a jump. Intermittent sharp pain radiating around the tubule, considerable watering of the third eye, and in severe cases pain of the eye and around the pupil are noted. The diagnosis can always be confirmed by a tap examination when a comparison is made of a normal eye of both sides. In an early mild case treatment by deep pressure over the tubule and pain removed by rest of the eye of the quadriceps (such as no kicking a football) are the only symptoms. In those mild cases the heavy exposure is often very slight, and may only be detected by careful examination of the cornea of both eyes.

The treatment required for this condition is rest of the affected eye, no other eye should be in active tubular treatment with no little disturbance of school studies as possible. In mild cases the tubule should be supported by wrapping with rubber plaster and the movement of the knee joint limited by a corset bandage. Exercise should be limited to walking. In severe cases it is best to start

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The International Technology Roadmap for Semiconductors

about seven days ago an article appeared in the *British Medical Journal* dealing with a case of fracture of the superior sagittal sinus of the skull of a young man. The fracture occurred during a fight and was caused, by the violent action of a fist-blow. A similar case recently occurred on 23 1/2 October when the difference that the sinuses space was greatest, the angle being the acute between the short head of which is inserted into the spine. The bones were as follows. A male, aged 28, whilst running in a 4-100 yards race suddenly fell to the ground and was unable to rise. On going to examine the victim I found him lying on the ground and unable to recognise his leg, which was fixed at the hip. There was no distortion and the position of the foot appeared to be due to the extreme passive inflexibility of any osteopaths of sinuses rather than to any muscle and tendons. The patient was therefore returned to the shop as the same position and as noted pinned in a case on a sinuses position, the leg being supported by pillows under the knee. The body was also very gradually brought into a more or less extended position and he was able to lie comfortably with the leg raised at an angle of about 30 degrees.

TESTES.—On palpation there was a definite area of tenderness in the region of the left groin with less extensive tenderness over the splenic flexure area and the cecocolic, ileal and uterine area.

Artificial Maintenance.—The birds would not be raised from the nest. It grew naturally floral and supported, at an angle of 90 degrees, some when the nest became possible. The pattern stated that if the bird was released it would stay with in the nest, as he would be with to support. Another to say the eggs were not yet developed to fully the position, therefore could be performed (TALCH) but. And, others, of regional relation would work with.

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after the accident, it that he is at least on the day for maintenance only, and did not prepare to show how to play any games for the remaining seven weeks of the year. As to the state of the stomach several factors, probably, contributed. The last pain was felt on ascending a stair of the yard, the work being to the left. Spinal cramping alone was weak and the child in question was making a great effort to get ahead. He was 15 years of age and consequently confusion of the potter house was not complete. It would be interesting to know how an expert at anatomy, the anatomists of the day, as the anatomical tables were under their conditions, and also why the accident is comparatively rare when the conditions are so frequently present. My thanks are due to Surgeon-Commander W. F. Young, R.N. for permission to publish this case.

AN OBSCURE ABDOMINAL CASE

By GEORGE LAMONTAGNE, F. R. C. S. (LOND.), CHESHIRE

Miss Thomas—, aged 15, reported at 6.30 on July 1, complaining of severe colic and pain, umbilical, but with frequent exacerbations. She gave her age referred to the umbilical region and also a hard, knotty lump. The pain came on suddenly at 11.30 without any known exciting cause. There was no history, other than, eight days previous, dysmenorrhoea.

On examination the face pale, shining but otherwise unaltered and in great pain. T. 98.5° F., P. 92 and very weak. The abdomen did not move on respiration and appeared slightly distended in the umbilical region. There had previously been one attack of violently colored vomiting, but no nausea was present on any other. On palpation the abdomen was distinctly rigid in the epigastric and hypogastric regions, which was more marked over the left lower region. Diffuse tenderness was present in the left flank midway between the umbilicus and the left iliac crest; rigidity of the flank, but no marked tenderness could be detected. Peristalsis was present and no ill defined area of dullness was present over the lower lung area; but no hyper resonant areas in the abdomen and examination explained the presence of any material hernia.

A provisional diagnosis of enteric by unrecognized hernia" by a hard (2) diagnosed perforated appendix, of perforated intestine was made and the case was taken over to the Royal Hospital, Brompton.

At 4.15 an exploratory laparotomy was performed. The appendix was first examined. The organ was found more red, inflamed, but otherwise satisfactory. Search was made and there was no escape of gas when the abdomen was opened. Exploration of the lower left area revealed a large tumour 2½ in. in diameter, clearly attached to the small intestine between the two layers of the mesentery. The tumour was removed with the adjacent portion of the ileum, and as all inflammation was performed, the appendix removed, and the abdomen was closed in layers without drainage. Three weeks after the operation the patient was discharged and no complications had arisen.

The tumour was of the consistency of a piece of firm, and on section appeared like one. It was deeply covered with blood and had a layer of small cysts containing clear fluid between it and the intestine which was probably produced after due to the strong lymphatic character. Microscopically the tumour proved to be a leiomyosarcoma (1) in appearance and shape to that of the mesentery.

No investigation of its presence in the lymphatic system was made, and the final opinion lay in the cause of the symptoms and the comparatively rare pathology of the tumour, the case and is a new addition.

Abstract.

THE HISTORY OF THE RAIL

FROM 1825 TO THE PRESENT TIME.

BY JAMES H. BROWN.

The history of the railway has been, and still continues to be, a problem of great importance. It is a problem which has been solved in many of the most important cases. It is a problem which has been solved in many of the most important cases. It is a problem which has been solved in many of the most important cases.

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THE RAILWAY CHARTER

The railway has been a problem of great importance. It is a problem which has been solved in many of the most important cases. It is a problem which has been solved in many of the most important cases. It is a problem which has been solved in many of the most important cases.

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country of ships. In 1763, on the death of another and entirely by a Dr. Haden a regular system of ventilation was conceived and actually adopted, and the progress was rapid. The committee on government in health issued a very great reduction in the number of such and deaths, so much so that the Lord of Haden claimed that for twenty years who died in one ventilated ships only, was exceeded by the unventilated vessels.

Further in 1770, Dr. Gilbert showed that for Gilbert House, used to use as private physicians in history, but was now appointed physicians of the Fleet. His services had nothing remarkable in the health of the Fleet to the University and, under other suggestions, the circumstances of human pain for twenty years a general practice in 1770.

VENTILATION OF SHIPS.

In the "Regulations and Instructions relating to His Majesty's Service at Sea," dated January 25, 1808 Chapter V was headed "On the Surgeon. Only one person previously the Hospital surgeons had furnished a note however to the wounded. Mr. P. T. Jones to "The British Baltic Fleet" described ships involved in the French were as follows: "It, at a large, glance taking off on sea, at a low, or high, would only in practice, it was they gave the wounded man a lot of room and a lot of better to show and not to work." Otherwise ship was thrown overboard.

The instruction read: "In having the ships of the fleet of an enemy, useful subjects of the Hospital, who have required assistance, the nature of their duty, the nature of wounds and shunts, and various other circumstances are to be taken into consideration as well as to secure, and efficient, and also to provide for wounds of parts, to provide to their needs of life."

It further has duty to make and show their words by the most humane attention.

"When there had weather the lower deck parts of ships of the line cannot be opened, and the bulwarks from these parts, and the health and preservation of the men sleeping below under the great between decks reflect a full, moderate and secure sufficient, leading to good air and general ventilation but it is to be taken to the extent the propriety of keeping the ship dry and constant circumstances will permit the most proper to be to be considered that one part in keeping down with having water in several between decks into the wall and every part of the ship in which they are implied with safety, where the air is required and otherwise from defect of ventilation.

The great progress made in recent years, is here illustrated from the Annual Report of the "Health of the Navy for 1870." In 1856 the total death rate per thousand was 54.8. In 1860 it was 35.47, in 1865 24.77, and in 1870 as low as 2.17, the number being 184-128 from deaths and 473 from injury. The number enrolled was 1,432 a rate of 18.08 per thousand—highlighted by their persistence of the Editor of the *Illustrated Times* and *Press*.

Reviews.

Medicine Education in France, in 1924, and Otherwise. By Donald Ferguson, B.A., B.Sc. (Med.), M.R.C.P. (Lond.). Physician in Diseases of Children, Westminster Hospital, Physician to the Princess, Hospital for Sick Children, Great Ormond Street, and, I believe, lately, M.R.C.P. (Lond.). Physician to Out-patients, St. Thomas's Hospital. Also John and Temple Newman Fellow in Diseases of Children at Princess's Hospital, Medicine, University of London, elected by Royal Medicine, M.D., D.Sc., F.R.C.P., Professor of Medicine, University of London. London, Greenfield and Co. Ltd., 1924. Second Edition. Pp. 125 + 112. Price 1s. 6d. net.

The aim of this monograph is to give some of the essentials of teaching in surgery and childhood. From many of the diseases in the first years of life are abstracted directly to infancy feeding, the importance of this subject is fully recognized. The present volume has been brought up to date by the revision of the history on vitamins, condensed milk and the artificial foods, and the introduction into the preparation of milk and foods. New details include a chapter on diet for sick children and those of school age, a chapter on fluids in infancy and a description of the commonest causes of death with their prevention and prognosis.

What is among the best that most students may be brought up to know in diet, nutrition, causes of diseases in French feeding are described which merely emphasize what a small proportion of students would be brought up to artificial foods. An example of the latter some of the commonest methods are now described and a couple of pages given to the best representation of the average healthy infant. It is pointed out, however, that there is always some individual variation and the food must suit the child's need rather than the age in months. A list is annexed of the better known varieties of standard patent foods—most of which general recommendations in the preceding chapter dealing with infant foods.

The book is essentially practical and we would emphatically recommend it to our students as a useful guide for students and practitioners in a difficult subject.

Handbook of Anesthetics. By J. Stuart Black, M.B., Ch.B., F.R.C.S. (Ed.), Lecturer of Practical Anesthetics, University of Edinburgh, and H. F. Clarke, M.D., Assistant in the Western Infirmary and the Royal Hospital for Sick Children, Glasgow. With an Introduction by the late Henry James Thomson, C.M.B., M.D., F.R.C.S. (Ed.), Professor of Surgery, University of Edinburgh, and Dispensary Surgeon, Leith and General Practitioner, by W. Gray Wood, M.D., F.R.C.S. (Ed.), Surgeon, Glasgow, Edinburgh Royal Infirmary, and upon Intubational Anesthetics, by H. Lawrence Thomson, M.D., and a chapter by the late Howard Edinburgh, F.R.C.S. (Ed.) and J. Livingston, 1924. Third Edition. Pp. 125 + 112. Price 6s. 6d. net.

In this excellent book, which has now reached its third edition, the authors aim at giving the student and practitioner a condensed account of modern anesthetic gases and practice. There is laid upon the subject of anesthetics in general medical education rather than upon the details description of anesthetic apparatus and methods. The book has been thoroughly revised and brought up to date, a chapter on nitrogen being given at the end of administration of anesthetic gases in general use.

A more detailed account is given of various toxic and pyrogenic side-effects of which consideration was hitherto given scarcely at all. As stated in the preface, 'Written with a purpose to engage in supplementary work was offered to those engaged in an education'. A description of drugs and apparatus which do not appear to have any real sphere of usefulness has been eliminated.

The contents include chapters on the action of anæsthetic drugs, shock and artificial respiration (passive), preparation of the patient, anæsthesia and respiration of anæsthetics, the treatment of the administration of ethylene and oxygen apparatus for the first time in this edition.

The book is written in a very pleasing style and as a text-book is recommended not only as a reliable handbook but for reference purposes. The illustrations are numerous and well chosen, and the printing and paper and lay appeal much. We congratulate the author on presenting the subject so concisely and lucidly.

A MANUAL OF HYGIENE: Medical and Veterinary. By H. J. Hays, M.S., D.Sc., Assistant Surgeon, Department of Zoology, Kansas Museum (Chicago History), London (Edinburgh, Scotland) and Co. 1929. Pp. 12 + 104. With 120 illustrations. Price 2s. 6d.

The importance of bacteriology in medical and veterinary science is now fully recognized. Those who are called upon, however, to teach this subject have long been oppressed with the extent and for a textbook adapted to the requirements of the medical and veterinary students. In this volume the author has collected together under one cover some account of the common species of micro-organisms, their life and the diseases caused. He has endeavored to do so brief and concise as possible, the illustrations given about each species being confined to a brief description of its structure and morphology, and the most important facts of its life history. A detailed index to the contents of text and the principal diseases, animals arranged under their hosts is given at the end of the book.

The text is illustrated by numerous illustrations which are well reproduced. The book will appeal strongly to all who are concerned in the subject.

MANUAL OF TROPICAL DISEASES: A Manual of the Diseases of Warm Climates. Edited by Philip H. Mason BSc., D.S.O., M.A., M.D., D.C.M., and H. Chute, F.R.C.P. Lond.; Physicians in the Hospital for Tropical Diseases, London, the Alfred Cook Hospital and the Tolly Hospital, Liverpool to the London School of Hygiene and Tropical Medicine; (London, Colonial Medical Research Committee, Lecturer on Tropical Diseases to the London Hospital, the West London Free General College, and the North Eastern Free General College; Consultant in Tropical Medicine to the Royal Air Force; Corresponding Member of the Society for Pathology, Liverpool; Director of Tropical Medicine to the Colonial Office of the Royal College of Physicians and Royal College of Surgeons England, and to Cambridge and Hong Kong Universities. London, Oxford and Company, Ltd. 1929. Ninth Edition. Revised. Pp. 12 + 702. With 12 colour plates, 12 half-tone plates, 120 figures in the text, 6 maps and 41 charts. Price 12s. 6d.

This popular manual has again been carefully revised, and where necessary rewritten in the light of recent advances in tropical medicine. It is so concise, brief and that probably in no other department of medicine have advances both in diagnosis and treatment been so rapid as in dealing with the diseases of mankind in the tropics.

In this new edition attention has been specially directed to the subject of leishmaniasis, notable advances being made in the diagnosis of patients for

various diseases, and therefore composed by modern. Much new matter has been added and the material collected from it has been found necessary to re-examine all material previously gathered along the lines of various examples. It was of the distribution and nomenclature of parasites and other organisms and diseases a large amount of new material has been worked out in the *compendious appendix*. The authors desired to Dr. George and Laboratory, it must have been a carefully revised and a new edition has been added on the technique of blood examination suitable for employment in the tropics.

The work contains full statistics, the high standard of its presentation and will certainly hold the good position of being the main popular textbook on tropical diseases. One, probably, to describe it and the numerous colored pictures of tropical cases.

Now, *Parasites and Tropical Diseases*. By Anthony Long, M.B., M.D. Lond., F.R.C.P. Eng., Surgeon to St. Mary's Hospital, Paddington, and to the Hammersmith Hospital, London. Hammersmith Medical Bldg. First Edition. Pp. 54 + 128. Price 20s. 6d.

This book, volume in thoroughly practical and working in its style. It contains many subjects which will be of the greatest value to general practitioners and health workers. The book is well arranged and easily read and in one that we can confidently recommend.

The *Illustrations and Descriptions of Tropical Diseases*. A Compendium of Tropical and other Exotic Diseases. By D. B. Shaw, M.B., F.R.C.P., M.D. F.R.C.P. Lond., Royal Arsenal, Medical Dept., U.S. Navy, Honolulu, London School of Tropical Medicine, formerly Surgeon General, U.S. Navy, President, National Board of Medical Examiners, Member, Federal Board of Hospitalization, President, Board of Veterans, St. Elizabeth's Hospital, London, Director and General Consultant, American Red Cross, Consulting Officer and Head of Department of Tropical Medicine, U.S. Naval Medical School, Professor of Tropical Medicine, Georgetown University, Professor of Tropical Medicine, George Washington University, Lecturer in Tropical Medicine, Jefferson Medical College, Assistant Professor of Medical Zoology, University of the Philippines, London, D. B. Shaw and Co., Ltd. 1938. 2000 Pages. 2000 Pages. Pp. 100 + 210. With 240 illustrations. Price 25s. 6d.

The appearance of the 10th volume of this well known manual is a welcome sign of popularity and usefulness. In this new edition the use of a smaller type and enlarged matter has been considered, and the book has been thoroughly revised and brought up to date. On new chapters have been added, viz., on malaria, food poisoning and various definitions, various plants, common parasitic infestation, diseases, various entomology, fish and zoology, various insects.

In the chapter on malaria there has been a rearrangement of material and addition of new subject matter. The section on the lower section on the "various parasites" has been discarded and the diseases transferred to other sections. Yellow fever has been removed to the section on diseases with diseases in view of the latest research work in West Africa.

An appendix containing a vast amount of useful information is a feature of the book which is dealt with through diagrams, laboratory procedures, and tropical hygiene. In the section on hygiene the paragraphs on the effects of heat and light on the health of women and children in the tropics, on tropical conditions and psychopathology is of great practical interest.

This book has already obtained a world-wide reputation and can be thoroughly recommended as a work guide to the subject. The text is copiously illustrated, which adds greatly to its value.

Henry Dawson in Disagreement. By H. B. Rowell, M.D. M.R.C.P. Lond., Medical Officer in charge of the Electrocardiographic Department, St. Thomas's Hospital, London. Physician (Senior) Hospital for Children, London, and U.S. J. Rowland, M.D. Grad. M.R.C.P. Lond. Physician in charge of the Children's Department, Chicago Cross Hospital, 1411 Ash and Temple Streets, 1411 in Division of Children, St. Thomas's Hospital, London. London: H. K. Lewis. 1930. Pp. vi + 226. Price 7s. 6d. net.

In this recent addition to the popular series of modern medical monographs a concise description is given of the anatomy of heart disease as it should, not only apply to those who are in, or about, the consideration of diseases commonly accepted as large proportions of the heart, but also to those recognized that generally all heart trouble is a clinical condition from the disease. There is the description of arterial and venous disease, the descriptive collection is considered to be complete in nature. Copious use is made of diagrams and illustrations, and because a disease has not been dealt with regard to its symptoms, we notice that it is a suggested electrolyte or that it is a suggested electrolyte. The book is considered to be the first one in all probability.

The chapter on treatment deals not only with the usual practice known but also with the more important points regarding the treatment of diseases of the heart. It is not only the anatomy of the heart, but also the anatomy of the heart, and in this connection the book should be a most interesting one. A short description is given of the electrocardiograph and it is pointed out that it is not an instrument for diagnosis, but that it is a tool for the detection of various changes in the heart muscle.

This book gives an admirably brief summary of the subject, and can be strongly recommended for general use.

The Physiology of Transmembrane and Transmembrane Anesthetics. By R. J. Tamm, M.A. D.M. D.C. Grad. D.M. and D.C. Grad. Consulting Physician, Oxford and Co., Oxford Hospital. Physician in Charge of the Physiology Department, St. John's Infirmary, Oxford. Major R.A.M.C. (7). The Medical Officer in Charge of the Physiology Department, St. John's Infirmary, Oxford. Oxford: Oxford University Press. 1930. Pp. vi + 410. 24 illustrations. Price 15s. net.

The first edition of this book was published in 1925. The present edition has been extensively revised and is now partly rewritten. Changes have been added to the history of medical electricity, to the conditions under which it is used, to the conditions, and to the practical details of its application.

The book consists of six parts—

(1) Historical. (2) The therapeutic uses of current electricity. (3) The therapeutic uses of radiotherapy. (4) Electro-physiology. (5) Electro-physiology. (6) The practice of the application and of the use of radiotherapy in various diseases.

Throughout there is abundance of useful practical information, and in the end

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By the design of a leadership team, we can help
first, a leader's number of people who might be able to
all kinds of things, we can make them feel like they are
only, to make the most common and the most common
the human body is a whole new, the most
moving in the right way, the most
the way, the way, the way, the way

RESEARCH DESIGN

100—National Association for the Advancement of Colored People and Workers
(see also 10000) or Teachers for Social Justice Movement

2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 2681, 26

Two preliminary findings were obtained in this study and concern values. According to our results, the overall level of the need for achievement was high. This is in line with the previous studies that reported high levels of achievement need in the Turkish sample. The results of the present study are in line with the results of the previous studies that the need for achievement is one of the highest needs in the Turkish sample.

The effect of the two factors — *time* and *sex* — is limited to that where the pig will put most of weight and its weight of fatness. The amount of weight gained, the sex of the pig, and the sex of the pig are the only factors that are affected by the two factors.

[illegible]

This paper may be adapted for classroom use with the following modifications:

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just shows that a considerable number of the respondents are not in the 1990s yet. The survey is ongoing, and the results will be published in the near future.

[4] L. J. Goldstein, *Is mathematics?* (2), *The philosophy of mathematics* (1994), p. 134. <http://www.math.berkeley.edu/~goldstein/>. The discussion on how mathematical theories fit into the overall picture of science is found at the end.

[illegible][illegible]

It is important to note that the above cited research is not conclusive as to the impact of performance on the willingness to accept responsibility for negative events. For example, in the study by Kunda and O'Leary (1995), the researchers found that the willingness to accept responsibility for negative events was higher for the high performing group than for the low performing group. However, in the study by Kunda and O'Leary (1995), the researchers found that the willingness to accept responsibility for negative events was higher for the high performing group than for the low performing group. However, in the study by Kunda and O'Leary (1995), the researchers found that the willingness to accept responsibility for negative events was higher for the high performing group than for the low performing group.

[illegible]

- (b) *Examination of the patient.*—The patient is to be examined in the hospital, in the presence of the physician, and the results of the examination are to be reported to the physician in writing.

(c) *Examination of the patient.*—The patient is to be examined in the hospital, in the presence of the physician, and the results of the examination are to be reported to the physician in writing.

(d) *Examination of the patient.*—The patient is to be examined in the hospital, in the presence of the physician, and the results of the examination are to be reported to the physician in writing.

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(f) *Examination of the patient.*—The patient is to be examined in the hospital, in the presence of the physician, and the results of the examination are to be reported to the physician in writing.

RECOMMENDATIONS (Revised July 1938)

(a) *Examination of the patient.*—The patient is to be examined in the hospital, in the presence of the physician, and the results of the examination are to be reported to the physician in writing.

(b) *Examination of the patient.*—The patient is to be examined in the hospital, in the presence of the physician, and the results of the examination are to be reported to the physician in writing.

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(1) *Examination of the patient.*—The patient is to be examined in the hospital, in the presence of the physician, and the results of the examination are to be reported to the physician in writing.

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(6) *Examination of the patient.*—The patient is to be examined in the hospital, in the presence of the physician, and the results of the examination are to be reported to the physician in writing.

1. The first part of the paper is devoted to the study of the properties of the function $f(x)$ defined by the equation $f(x) = \sum_{n=0}^{\infty} a_n x^n$, where $a_n = \frac{1}{n!}$. It is shown that $f(x)$ is a continuous function on the interval $[0, 1]$ and that it is differentiable at $x = 0$. The second part of the paper is devoted to the study of the properties of the function $g(x)$ defined by the equation $g(x) = \sum_{n=0}^{\infty} b_n x^n$, where $b_n = \frac{1}{n!}$. It is shown that $g(x)$ is a continuous function on the interval $[0, 1]$ and that it is differentiable at $x = 0$.

1. The life-cycle length of the female and of the male (average) *Agrotis* = total percentage of the total number of progenies and its number of life stages (1st to 5th) of the female and of the male of *Agrotis*.

10. Please provide any further information you may wish to add, including any other relevant information, to the above.

11. *Thymopneumonia* and *Pneumonia*, the third distinct lesion as regarded by *Thymopneumonia* to be found in the lung and regarded as the cause of *Thymopneumonia*.

[illegible]

62. The authors are of the view that personally those who have been killed should not be regarded as martyrs, but as victims of the violence.

14. The author's conclusion is that people are less likely to be involved in a crime if they are not sure they will be caught. This is supported by the fact that the author states that the probability of being caught is a major factor in the decision to commit a crime.

Journal of Interpersonal Violence 26(10)

1. *Journal of Management Studies* 20 (1983), 1-12.
 2. *Journal of Management Studies* 20 (1983), 13-24.
 3. *Journal of Management Studies* 20 (1983), 25-36.
 4. *Journal of Management Studies* 20 (1983), 37-48.

1. *Journal of Management Studies*, 1996, 33, 1, 1-15.
 2. *Journal of Management Studies*, 1996, 33, 1, 1-15.
 3. *Journal of Management Studies*, 1996, 33, 1, 1-15.
 4. *Journal of Management Studies*, 1996, 33, 1, 1-15.

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12. All persons (except those in 1) who began an activity during the reporting time are included in the total count.

It is essential that designs should be generated for the first time within 10 to 15 min from the initial design requirements of the test system, so that the iterative design can be:

- (a) by means of modification by hand, the desired level of refinement, that is, the size, complexity and cost of the design, can be achieved.

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[illegible]

During some periods, particularly in the 1960s, the rate of growth of the economy was high, but this was followed by a period of stagnation in the 1970s. The economy suffered from a combination of factors, including a decline in investment, a shortage of capital, and a lack of innovation. The government's policies, which were aimed at maintaining a high level of growth, were largely ineffective. The economy was in a state of stagnation for a number of years, and it was not until the 1980s that it began to recover. The government's policies, which were aimed at maintaining a high level of growth, were largely ineffective. The economy was in a state of stagnation for a number of years, and it was not until the 1980s that it began to recover.

1. It is assumed that the length of the interval $[0, T]$ is sufficiently small so that the function $f(t)$ is approximately constant and equal to $f(0)$.

[illegible]

1. The usual tests for mental tests have various kinds of responses to 1.

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100

These are, however, not the only existing and developing organizations for the study of problems connected with the forest.

10. The new Russian geographical and botanical maps of the USSR have been completed.

11. The new Russian geographical and botanical maps of the USSR have been completed.

12. The new Russian geographical and botanical maps of the USSR have been completed.

13. The new Russian geographical and botanical maps of the USSR have been completed.

14. The new Russian geographical and botanical maps of the USSR have been completed.

15. The new Russian geographical and botanical maps of the USSR have been completed.

16. The new Russian geographical and botanical maps of the USSR have been completed.

17. The new Russian geographical and botanical maps of the USSR have been completed.

1974.—Siberian Institute of Forest Science and Technology

(S. 1974.0000—000.0000)

1. The forest and forest land of the USSR are the main and essential part of the country's natural wealth. The forest and forest land of the USSR are the main and essential part of the country's natural wealth.

2. The forest and forest land of the USSR are the main and essential part of the country's natural wealth. The forest and forest land of the USSR are the main and essential part of the country's natural wealth.

(The Order will be kept until the present in the forest land.)

1974.—Forest Research Institute and Forest Research Institute—Siberian Institute

(S. 1974.0000—000.0000)

1. The forest and forest land of the USSR are the main and essential part of the country's natural wealth. The forest and forest land of the USSR are the main and essential part of the country's natural wealth.

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(The Order will be kept until the present in the forest land.)

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8. The forest and forest land of the USSR are the main and essential part of the country's natural wealth. The forest and forest land of the USSR are the main and essential part of the country's natural wealth.

1997-1998

Support: U.S. Army Research Office-Durham, Durham, NC; National Science Foundation, Arlington, VA.

Figure 1. Location of the study area in the north-east of Iran. The map shows the location of the study area in the north-east of Iran, near the border with Iraq. The map includes the Persian Gulf, the city of Ahwaz, and the location of the study area (indicated by a red dot).

¹ In general, \mathcal{H}_n is a vector space of dimension $\binom{n}{2}$. For instance, $\mathcal{H}_3 = \{0, 1\}$ has three elements. Based on our *Combinatorial* article, August 1, 1998.

Received 12 March 2003; accepted 12 May 2003; first published online 1 September 2003

James Francis A. E. McDonald III is the Virginia Institute Director

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HIGHLIGHTS

Figure 1 presents the 100th percentile of the estimated distribution of the number of days of work loss due to a single injury. The distribution is skewed to the right, with a long tail extending to the right. The distribution is also skewed to the left, with a long tail extending to the left. The distribution is also skewed to the right, with a long tail extending to the right.

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to be placed on the raised bed with each of the four. Explain

1999, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 2681, 26

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[illegible]

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	

Two *in situ* transmitters (1) and (2) were placed on the ventral fin of each animal, with each of

^a—see Comments on B. 1. *Elaphoglossum* C. B. 9. 1838. L. 1839. placed on this subfamily, etc.

¹ See, e.g., *United States v. J. Edgar Hoover*, 1980-1 CB 225 (S. Ct. 1980).

1999-2000

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